MARKETING OF KANSAS CANTALOUPS, HONEYDEW MELONS, ONIONS AND POTATOES, WITH SPECIAL REFERENCE TO SHIPMENTS FROM THE WESTERN KANSAS IRRIGATED AREA

by

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INTRODUCTION

The purpose of this study is to determine the importance of Kansas in the production and marketing of fresh vegetables for Eastern consumer outlets. The four principal vegetables produced and marketed from Kansas in 1945 were cantaloups, honeydew melons, onions and potatoes. In 1944 and 1945 large acreages of the first three vegetables were planted in Western Kansas on a commercial scale under irrigation. While some plantings of potatoes have been made in the Western area, Eastern Kansas is still the most important potato section of the State.

The future role that Kansas may play in the nation's vegetable markets may depend on the commercial development of the Western Kansas area. This region has certain natural advantages for irrigation such as level topography, fertile soil, and apparently a good source of underground water. Natural gas is available for power.

Production trends of these four commodities in the United States were analyzed to determine the relation of Kansas production to national production of these vegetables.

Data on such marketing problems as market outlets, proximity of markets, seasonality and method of shipment, and factors affecting price were collected for both Kansas and United States shipments of these four vegetables. These facts were essential to determine what improvements might be made in Kansas marketing methods of these vegetables.

Since the demand for these products in the future will be affected materially by changes in consumer habits, a long-time summary was made of the per capita consumption of these four vegetables in the United States.

SOURCES OF DATA

While many States have publications dealing with the marketing of specific crops, there is little published material concerning the production of cantaloups, honeydew melons, onions and potatoes on a commercial basis under irrigation in Kansas.

Statistical data on unloads of the four commodities at the various markets were obtained from the yearly summaries prepared by the Agricultural Marketing Service of the United States Department of Agriculture for markets of New York, Chicago, St. Louis and Kansas City, Missouri, for the years 1936 to 1945.

Statistical data for yearly summaries of unloads from Kansas were obtained from the following Statistical Bulletins of the United States Department of Agriculture: No. 30 of May, 1930; No. 35 of October, 1931; No. 38 of July, 1932; No. 42 of September, 1933; No. 46 of May, 1934; No. 50 of January, 1946; and No. 61 of September, 1937.

Production and yield data were obtained from Agricultural Statistics for 1944 and 1945. The Agricultural Outlook Charts for 1946 were used for the material on price in relation to production.

Production and Consumption of Fruits and Vegetables in the

United States" published by the Bureau of Agricultural Economics, United States Department of Agriculture, in December, 1943, provided data on the per capita consumption.

Summary material of the consumption areas of vegetables in the United States and the distribution of carlot shipments of vegetables in the United States was obtained from a study entitled "Index Numbers of Railroad Freight Rates on Perishable Agricultural Shipments, United States 1913-38" by C. C. Matlock of March, 1931.

Information on the harvesting periods in the entire United States for the four crops is available in a mimeographed report by C. O. Parker and R. Royston, "Usual Dates of Planting and Harvesting Commercial Truck Crops for Fresh Market", United States Department of Agriculture, July, 1945.

Several miscellaneous publications provided additional reference material. These publications include Kansas State College Technical Bulletin 28, "Some Factors Influencing the Midseason Potato Market" by E. A. Stokdyk of August, 1931; K. S. C. Circular 194 of November, 1938, entitled "Roadside Marketing of Horticultural Products in Kansas" by F. L. Parsons; K. S. C. Bulletin 298, "Market Quality of Kansas Potatoes as Determined by Federal Inspection" by F. L. Parsons, November, 1941; and Bulletin 310, "Some Cold Storage Studies of Kansas Potatoes" of December, 1942, by F. L. Parsons.

A study similar to this thesis was reported on the marketing of Arkansas vegetables on the Kansas City wholesale market by H. Jackson and Trimble Hedges of the University of Arkansas.

METHODS OF PROCEDURE

The data on production of the four crops in Kansas were obtained from a visit to the area and from materials provided by William G. Amstein, Extension Horticulturist, Kansas State College.

Trends of average, yield and production were calculated by the use of the linear regression formula $b = \frac{Sxy}{Sx^2}$ in which
X = the successive years or the independent variable and
Y = production or yield or the dependent variable. In all cases the starting and stopping points for the period under study were taken to be as near as possible comparable phases of the cycle involved in order to reduce bias.

The material used in the carlot shipments study was calculated from reliable sources or compiled directly from official reports. The calculations consisted chiefly of determining total monthly unloads for a ten-year period for cantaloups, honeydew melons, onions and potatoes at the New York, Chicago, St. Louis and Kansas City markets. These data were derived from the annual unload summaries of these four markets published by the Agricultural Marketing Service of the United States Department of Agriculture. The total unload figures for each month were calculated by combining all rail, boat and truck shipments for that particular commodity for that month.

For each commodity at each market a ten-year monthly average

was calculated from the ten-year total unloads by months. A yearly average for the ten-year period was calculated also. The percent each monthly average is of the annual average of that commodity was then calculated.

THE WESTERN KANSAS VEGETABLE-PRODUCING AREA

This study is concerned with the production of cantaloups, honeydew melons, onions and potatoes under irrigation in Western Kansas and its economic effects on existing producing areas within the State. During the last two years vegetable production has expanded quite rapidly in Western Kansas. While Kansas is still relatively unimportant as a vegetable-producing area, some important problems may arise as a result of this expansion.

According to the Sixteenth Census of the United States, vegetables harvested for sale in 1939 in Kansas amounted to $332,234 as reported from 636 farms, while the income from all farm products sold in Kansas amounted to $226,984,994 for 151,167 reporting farms. The farms reporting vegetables harvested for sale thus included only .42 percent of all reporting farms in 1939 and their sales amounted to only .15 percent of all sales reported. The average amount sold per farm reporting vegetables for sale was $522.38. The above data indicate that vegetable production in Kansas has been restricted to a few farms with relatively low income. Vegetable production on farms reporting vegetable sales in 1939 represented 61.9 percent of all the products they produced for sale.

Tables 5 and 6 show the carlot shipments of all fruits and vegetables from Kansas in 1944 and 1945. The four commodities made up 85 percent of all carlot shipments from the State in 1944 and 87 percent of all carlot shipments in 1945.

As in the case of all new enterprises, many questions arise. Is the expansion stable and permanent? What are the opportunities for growth and development? An important aspect to be considered is the effect that the new producing area may have on the economy of existing producing areas. Problems that may arise are those of production, storage, and marketing. It should be considered whether or not new commercial areas will be entirely on a "ship-out" basis or will they have some influence on local markets in the State. Possibly experience may show new techniques that may be applied to older producing areas in the State. As pointed out earlier, the area in Western Kansas is relatively new and untried. The results obtained in this study to date, while certainly not conclusive, indicate that the principal benefits to be derived from such an analysis are to be found not so much in the new producing area, but in supplying factual material for consideration by those concerned in existing older producing sections which are composed chiefly of small scale farming units.

Some factors worthy of future study are the economic changes needed by the small scale farmers to meet the growing competition of large scale commercial farmers in the vegetable field. A tentative answer to this problem might be the development of a

cooperative marketing organization by the small scale farmers.

Description of Area and Facilities

The Western Kansas area became important as a vegetable-producing area only since 1944. Maps of the area, Figs. 1, 2, 3 and 4 show the important producing areas in 1944 and 1945 of the four commodities, cantaloups, honeydew melons, onions and potatoes, as determined by carlot shipments from the State during these years. Henceforth, in this thesis, the above four vegetables will be referred to as "the four commodities" or "the four vegetables".

The Western Kansas acreage of these crops is produced on a large commercial scale under irrigation. The land is privately owned and leased to large brokerage firms who grow, harvest and market the crops. Usually the lease arrangement provides that the land owner furnish the irrigation water.

The significant centers of production are Scott City, Ulysses, Big Bow, Johnson, and Hugoton in Scott, Grant, Stanton and Stevens Counties, respectively. These areas with the exception of Hugoton were visited by the writer and certain data collected. Additional information was obtained from William G. Amstein, Extension Specialist in Horticulture, Kansas State College.

Scott City Area. One individual owns the land supplying the Scott City shed. His farm is about four miles west of

Scott City, and he leases the land to a Colorado vegetable produce company. The lessor furnishes the irrigation water for the crops. Nine wells are used on this farm, which includes 300 acres of cantaloups, 300 acres of honeydew melons and 100 acres of onions. This individual also raises about 200 acres of sugar beets of his own for market at Garden City.

The Scott City packing shed is located on the Santa Fe Railroad but consignments are made on Missouri Pacific cars. However, all rail arrangements at Scott City are handled by the Santa Fe Railroad. The shed at Scott City was built in 1945 and handled the 1945 crop. It was enlarged for the 1946 harvest. The existing shed is of good wood construction and is about 250 feet long and 50 feet wide, with a capacity of around two cars per hour. It can keep at least 60 pickers working in the field. Machinery is available for unloading from trucks, grading, packing and loading into refrigerator cars. The cars are delivered iced but additional ice is added before shipment. Most of the honeydews go to New York and Philadelphia. No mechanical refrigeration facilities are available at the packing shed. The labor force appeared to be predominately Mexican. All shipments handled by the Colorado company at Scott City are sold by the firm's sales department.

Ulysses Area. The Ulysses shed is also operated by a Colorado vegetable company. They also do their own selling, and they operate under a lease arrangement with a landowner in much the same manner as the Scott City shed. The irrigation wells are powered by natural gas. The producing area is located about

six miles northwest of Ulysses. Honeydew production is much more important in this area than at Scott City. There were approximately 500 acres of honeydew melons, 100 acres of cantaloups and 30 acres of onions under irrigation at Ulysses in 1946. Potatoes were raised in 1945, but due to marketing difficulties, they were not produced by this company in 1946.

The shed at Ulysses is similar to the Scott City shed but of more permanent construction, being made of concrete blocks. It is also about 250 feet long and 50 feet wide but with a capacity of about four cars per hour. The shed is located on the Santa Fe Railroad.

Big Bow. The shed at Big Bow is not of such permanent construction. It is an open shed, approximately 80 feet long and 50 feet wide and located on the Santa Fe Railroad. It is operated by a Chicago firm, who do their own selling. Producers in this area raise about 340 acres of cantaloups and approximately 160 acres of onions. These growers operate on a lease arrangement similar to the Scott City and Ulysses area.

Johnson Area. Johnson is located in Stanton County and is on the Santa Fe Railroad west of Big Bow. This area produced about 280 acres of cantaloups and 125 acres of onions in 1946. These growers operate under a lease arrangement and the shed packs for a Chicago firm. The Johnson shed is a temporary wooden shed about 70 feet long and 30 feet wide.

Hugoton Area. This area in Stevens County was not visited but the following data were obtained from Extension Horticulturist Amstein.

Growers produced about 140 acres of cantaloups and 40 acres of onions in 1946. No shed is available but producers planned to load at Ulysses and sell through a Colorado firm.

Summary of Western Kansas Acreage

A summary of the above acreage is as follows:

Area	Cantaloups	Honeydews	Onions	Potatoes
Scott City	300	300	100	-
Ulysses	100	500	30	-
Big Bow	340	-	160	-
Johnson	280	-	125	-
Hugoton	140	-	40	-
Total	1,160	800	455	-

The following is an extract from an article appearing on page 3 of The Topeka Daily Capital, August 7, 1946:

> Hundreds of Cars. Estimates given the Santa Fe division freight officials indicate packing sheds at Ulysses, Big Bow, Johnson, Hugoton will ship 465 cars of honeydews, 320 cars of cantaloups and 385 cars of onions, or a three-crop total of 1,170 cars.
>
> From Scott County fields, George Smith and Company, with main offices at Avondale, Colo., advised Missouri Pacific division officials here that an estimated 175 cars of honeydew melons, 225 cars of cantaloups and 11 cars of onions will originate.
>
> The grand total of estimates is 1,581 carloads.
>
> Bigger Next Year. In the Copeland-to-Johnson territory across Haskell, Grant and Stanton counties 106 deep wells, each with sufficient water to irrigate approximately one quarter section of land, are completed, according to the latest survey by Santa Fe Division Freight Agent Frank Rupple.

Eight operators are in the field which two years ago had only two and indications are there will be another tremendous expansion next year as the wells go on the pump.

CARLOT SHIPMENTS OF FRUITS AND VEGETABLES FROM KANSAS

This phase of the study was made to determine: First, the trend of shipments of the four commodities from Kansas during the past ten years; second, the relative importance of these four commodities compared with all shipments of fruits and vegetables from Kansas in 1944 and 1945; and third, the origin of shipments of these four commodities from Kansas in 1944 and 1945.

The total shipments of cantaloups from Kansas were relatively unimportant during the period 1926 to 1943. Shipments jumped from 17 cars in 1944 to 142 cars in 1945.

A similar condition existed for honeydew melons. In 1944 there were 133 cars shipped. This increased to 257 cars of honeydews in 1945.

Few shipments of onions were reported for the years 1926 to 1943. In 1944 there were 47 cars of onions shipped from the State, while in 1945 the total was 140 cars.

The picture for potatoes was about the reverse of the other three commodities. Potato shipments have declined from 4,822 cars in 1928 to 474 cars in 1944. This total dropped to 465 cars in 1945, due to a decline in potato production in the Kaw Valley.

The following summary represents the importance of the shipments of the four vegetables as a percent of all fruits and

vegetables shipped from Kansas in 1944 and 1945.

Year	Four commodity shipments	All fruit and vegetable shipments	Percent
1944	671	788	85
1945	1,004	1,156	87

Tables 7, 8, 9 and 10 point out the origin of shipments by the four commodities in Kansas during 1944 and 1945. The Scott City area is more important for cantaloups while the Ulysses area tends to concentrate on honeydew melons and onions.

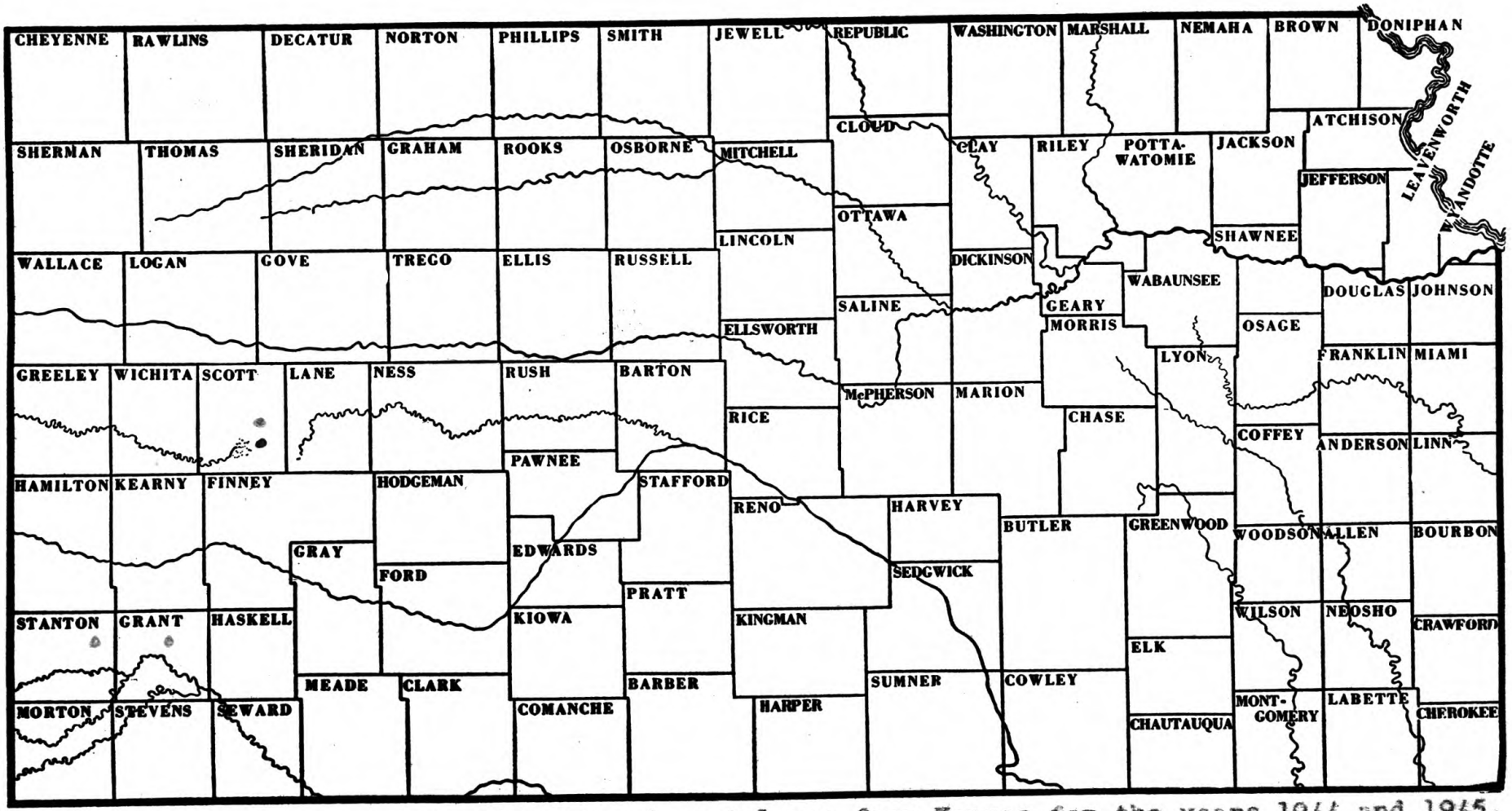

Fig. 1. Origin of carlot shipments of cantaloups from Kansas for the years 1944 and 1945.
• 1944
• 1945

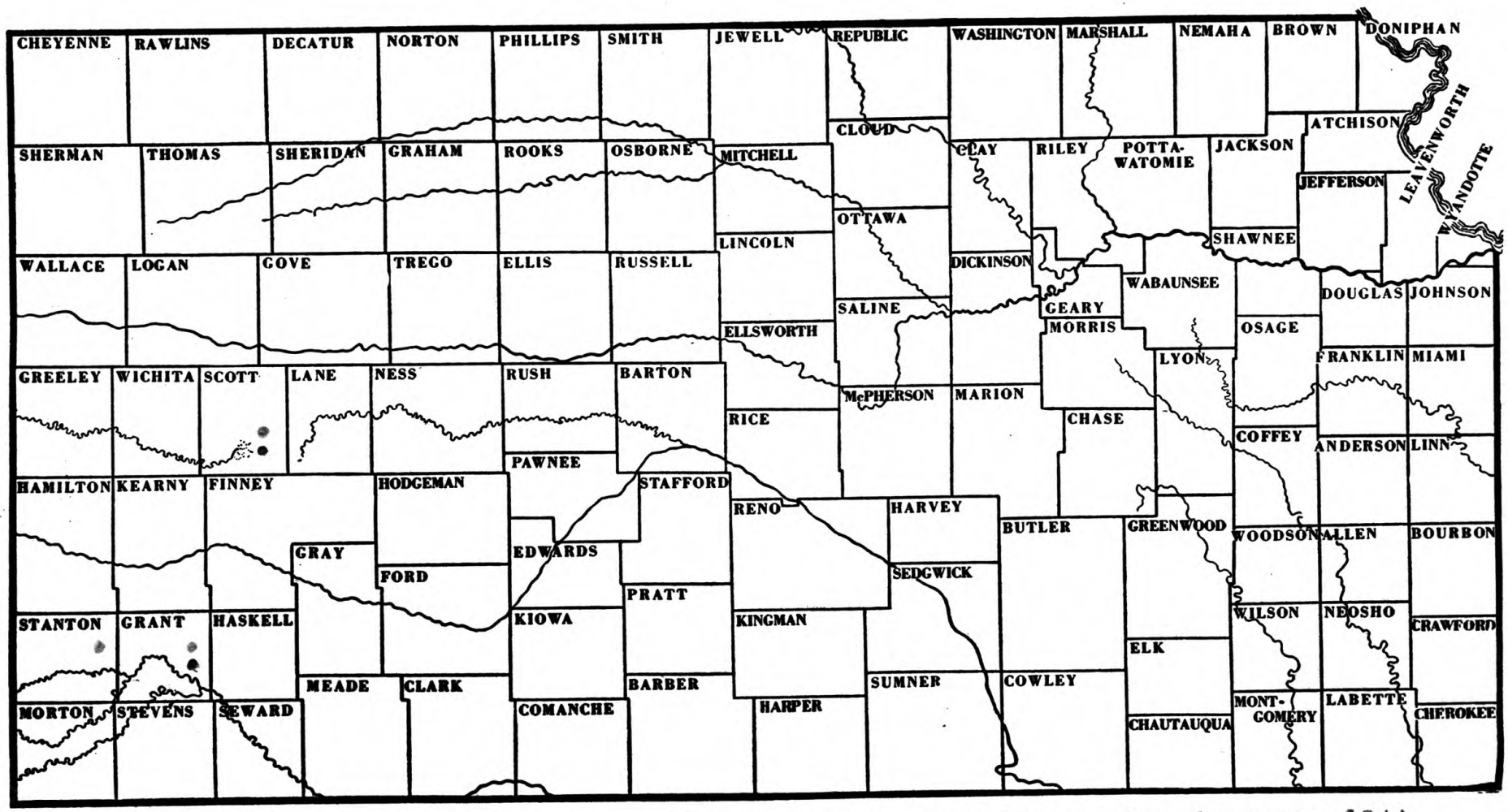

Fig. 2. Origin of carlot shipments of honeydew melons from Kansas for the years 1944 and 1945.

• 1944

. 1945

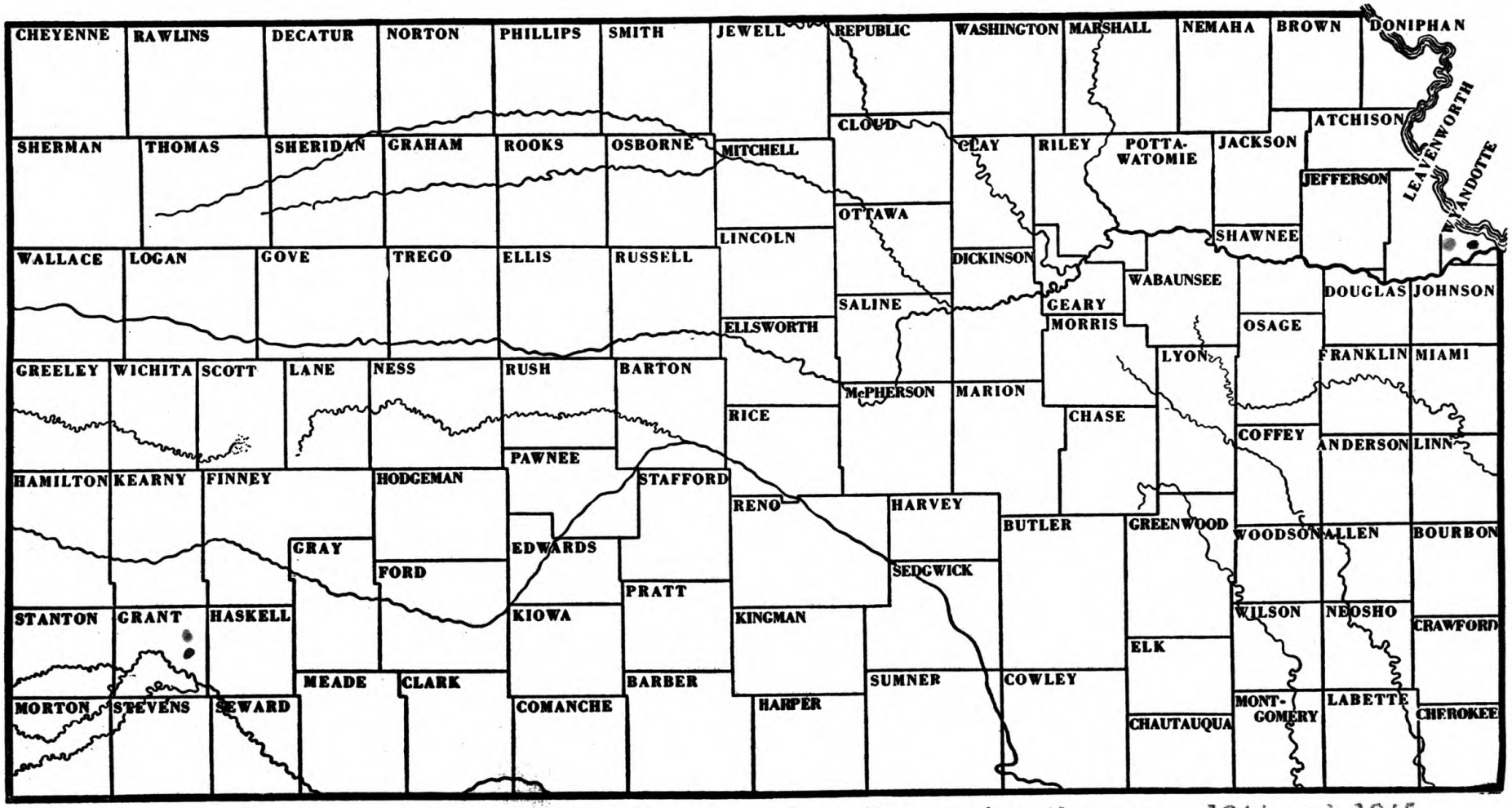

Fig. 3. Origin of carlot shipments of onions from Kansas for the years 1944 and 1945.
• 1944
• 1945

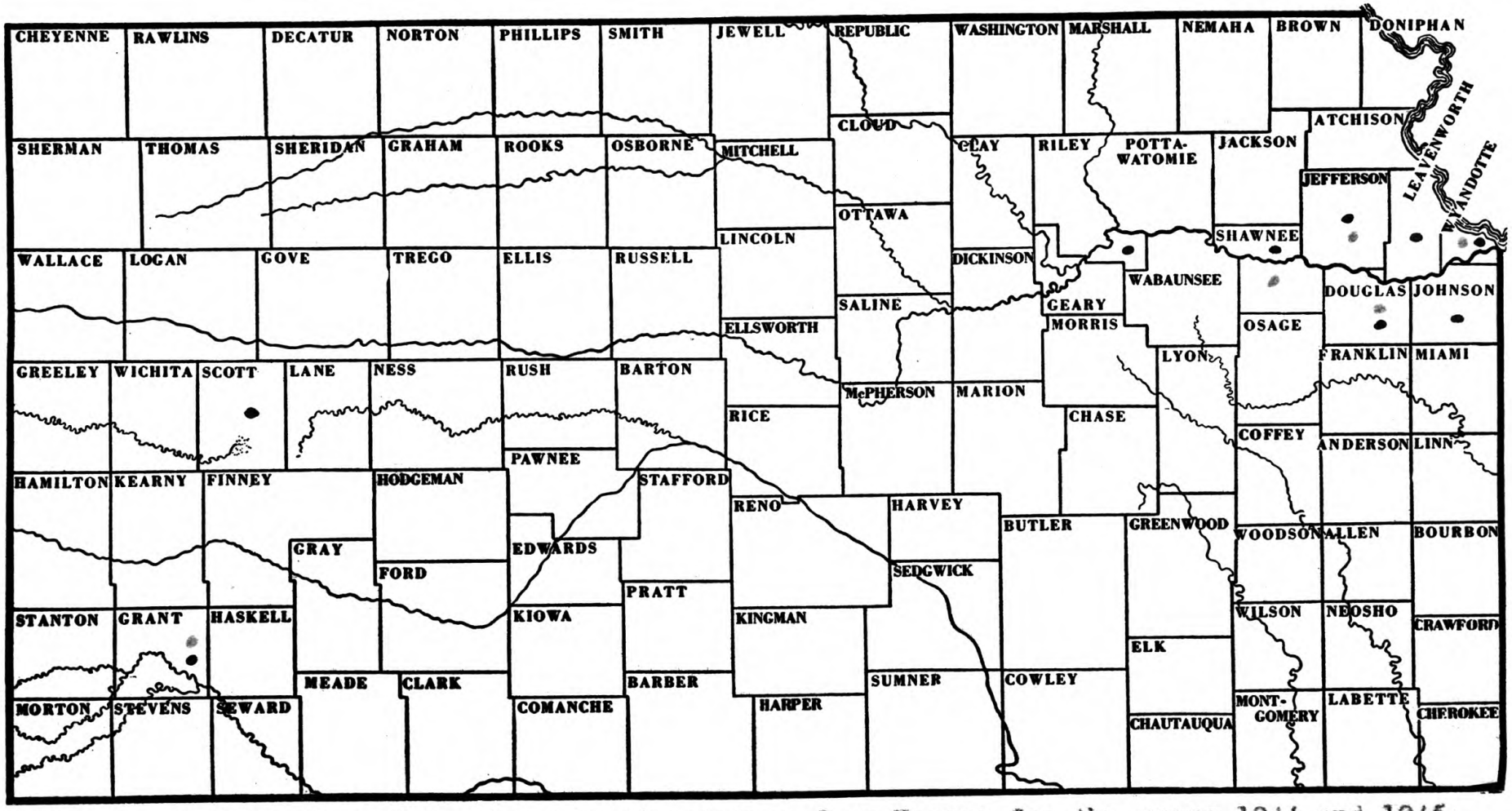

Fig. 4. Origin of carlot shipments of potatoes from Kansas for the years 1944 and 1945.
•1944
•1945

Table 1. Carlot shipments of cantaloups from Kansas, 1926-45.[1]

Year	Number shipments	Year	Number shipments
1926	2	1936	0
1927	1	1937	3
1928	9	1938	0
1929[2]	7	1939	0
1930[2]	3	1940	1
1931[2]	12	1941	0
1932[2]	4	1942	0
1933[3]		1943	0
1934[3]		1944	17
1935	0	1945	142

[1]Agricultural Statistics Division, "Carlot Shipments of Fruits and Vegetables in Kansas". U. S. Dept. Agr., Bur. Agr. Econ. (Mimeo. ann. rpts.) 1926 to 1945.

[2]"Carlot Shipments and Unloads of Important Fruits and Vegetables". U. S. Dept. Agr. Statis. Bul. No. 35, October, 1931; No. 42, September, 1933; No. 46, May, 1934.

[3]Data not available.

Table 2. Carlot shipments of honeydew melons from Kansas, 1926-45.[1]

Year	Number shipments	Year	Number shipments
1926	1	1936	0
1927		1937	0
1928	3[2]	1938	0
1929[3]	1[2]	1939	0
1930[3]	1	1940	0
1931[3]	8	1941	0
1932[3]	9	1942	0
1933	12	1943	0
1934	2	1944	133
1935	0	1945	257

[1]Agricultural Statistics Division, "Carlot Shipments of Fruits and Vegetables in Kansas". U. S. Dept. Agr., Bur. Agr. Econ. (Mimeo. ann. rpts.) 1926 to 1945.

[2]Includes miscellaneous melons.

[3]"Carlot Shipments and Unloads of Important Fruits and Vegetables". U. S. Dept. Agr. Statis. Bul. No. 35, October, 1931; No. 38, July, 1932; No. 42, September, 1933; No. 46, May, 1934.

Table 3. Carlot shipments of onions from Kansas, 1926-45.[1]

Year	Number shipments	Year	Number shipments
1926	24	1936[2]	9
1927	22	1937[2]	0
1928	6	1938[2]	6
1929	6	1939[2]	8
1930	10	1940[2]	0
1931	1	1941[2]	0
1932	1	1942[2]	6
1933	5	1943[2]	5
1934	0	1944[2]	47
1935	0	1945[2]	140

[1]J. W. Park, "Marketing Onions". U. S. Dept. Agr. Tech. Bul. No. 555. 88 p. April, 1937. p. 33.

[2]Agricultural Statistics Division, "Carlot Shipments of Fruits and Vegetables in Kansas". U. S. Dept. Agr., Bur. Agr. Econ. (Mimeo. ann. rpts.) 1926 to 1945.

Table 4. Carlot shipments of potatoes from Kansas, 1926-45.[1]

Year	Number shipments	Year	Number shipments
1926	4,063	1936	1,261
1927	4,333	1937	1,361
1928	4,822	1938	2,078
1929[2]	2,475	1939	1,035
1930[2]	3,842	1940	1,153
1931[2]	2,714	1941	1,273
1932[2]	3,132	1942	970
1933	1,623	1943	1,057
1934	392	1944	474
1935[2]	595	1945	465

[1]Agricultural Statistics Division, "Carlot Shipments of Fruits and Vegetables in Kansas". U. S. Dept. Agr., Bur. Agr. Econ. (Mimeo. ann. rpts.) 1926 to 1945.

[2]"Carlot Shipments and Unloads of Important Fruits and Vegetables". U. S. Dept. Agr. Statis. Bul. No. 35, October, 1931; No. 38, July, 1932; No. 42, September, 1933; No. 46, May, 1934; No. 61, September, 1937.

Table 5. Carlot shipments of fruits and vegetables from Kansas during 1944.[1]

Commodity	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Apples	-	-	-	-	-	-	-	-	37	11	-	-	48
Cabbage	-	-	-	-	-	1	-	-	-	-	-	-	1
Cantaloups	-	-	-	-	-	-	-	11	6	-	-	-	17
Corn	-	-	-	-	-	-	1	-	-	-	-	-	1
Grapes	-	-	-	-	-	-	-	3	7	-	-	-	10
Melons, honeydew	-	-	-	-	-	-	-	65	68	-	-	-	133
Onions	-	-	-	-	-	-	3	4	23	17	-	-	47
Potatoes (white or Irish)	1	1	1	-	-	-	369	69	24	9	-	-	474
Potatoes (sweet)	1	-	1	-	-	-	-	-	-	-	10	10	22
Turnips and rutabagas	1	1	1	1	-	-	-	-	-	1	1	-	6
Vegetables (mixed)	1	5	4	2	-	-	-	-	-	-	-	-	12
Watermelons	-	-	-	-	-	-	-	4	13	-	-	-	17
Total	4	7	7	3	-	1	373	156	178	38	11	10	788

[1] Agricultural Statistics Division. "Carlot Shipments of Fruits and Vegetables in Kansas". U. S. Dept. Agr., Bur. Agr. Econ. (Mimeo. ann. rpts.) 1926 to 1945.

Table 6. Carlot shipments of fruits and vegetables from Kansas during 1945.[1]

Commodity	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Apples	1	1	-	1	1	-	-	-	30	41	-	-	75
Cabbage	-	-	-	-	-	-	1	-	-	-	-	-	1
Cantaloups	-	-	-	-	-	-	-	9	131	2	-	-	142
Fruits, (mixed deciduous)	-	-	-	-	-	-	-	-	-	1	-	-	1
Grapes	-	-	-	-	-	-	-	-	13	-	-	-	13
Melons, honeydew	-	-	-	-	-	-	-	-	200	57	-	-	257
Melons,(mixed)	-	-	-	-	-	-	-	-	1	-	-	-	1
Onions	9	-	-	-	-	-	-	8	-	89	33	1	140
Pears	-	-	-	-	-	-	-	-	1	5	-	-	6
Potatoes (white or Irish)	-	-	1	-	-	4	403	46	7	-	-	4	465
Potatoes (sweet)	14	5	1	-	-	-	-	-	-	7	14	6	47
Turnips and rutabagas	-	2	-	-	-	-	-	-	-	-	-	-	2
Watermelons	-	-	-	-	-	-	-	1	5	-	-	-	6
Total	24	8	2	1	1	4	404	64	388	202	47	11	1,156

[1]Agricultural Statistics Division. "Carlot Shipments of Fruits and Vegetables in Kansas". U. S. Dept. Agr., Bur. Agr. Econ. (Mimeo. ann. rpts.) 1926 to 1945.

Table 7. Carlot shipments of cantaloups by points of origin in Kansas during 1944 and 1945.[1]

Origin	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
						1944							
Scott Scott City	-	-	-	-	-	-	-	11	6	-	-	-	17
Total	-	-	-	-	-	-	-	11	6	-	-	-	17
						1945							
Scott Scott City	-	-	-	-	-	-	-	-	87	2	-	-	89
Grant Ulysses	-	-	-	-	-	-	-	6	23	-	-	-	29
Stanton Johnson	-	-	-	-	-	-	-	3	21	-	-	-	24
Total	-	-	-	-	-	-	-	9	131	2	-	-	142

[1]Agricultural Statistics Division. "Carlot Shipments of Fruits and Vegetables in Kansas". U. S. Dept. Agr., Bur. Agr. Econ. (Mimeo. ann. rpts.) 1926 to 1945.

Table 8. Carlot shipments of honeydew melons by points of origin in Kansas during 1944 and 1945.[1]

Origin	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
						1944							
Scott Scott City	-	-	-	-	-	-	-	-	7	-	-	-	7
Grant Ulysses	-	-	-	-	-	-	-	65	61	-	-	-	126
Total	-	-	-	-	-	-	-	65	68	-	-	-	133
						1945							
Grant Ulysses	-	-	-	-	-	-	-	-	168	1	-	-	169
Scott Scott City	-	-	-	-	-	-	-	-	5	55	-	-	60
Stanton Johnson	-	-	-	-	-	-	-	-	27	1	-	-	28
Total	-	-	-	-	-	-	-	-	200	57	-	-	257

[1]Agricultural Statistics Division. "Carlot Shipments of Fruits and Vegetables in Kansas". U. S. Dept. Agr., Bur. Agr. Econ. (Mimeo. ann. rpts.) 1926 to 1945.

Table 9. Carlot shipments of onions by points of origin in Kansas during 1944 and 1945.[1]

Origin	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
						1944							
Grant													
Ulysses	-	-	-	-	-	-	-	-	23	17	-	-	40
Wyandotte													
Kansas City, Mo.[2]	-	-	-	-	-	-	-	1	-	-	-	-	1
Turner	-	-	-	-	-	-	-	1	-	-	-	-	1
Morris	-	-	-	-	-	-	3	2	-	-	-	-	5
Total	-	-	-	-	-	-	3	4	23	17	-	-	47
						1945							
Grant													
Ulysses	9	-	-	-	-	-	-	-	-	89	33	1	132
Wyandotte													
Kansas City, Mo.[2]	-	-	-	-	-	-	-	-	-	-	-	-	-
Turner	-	-	-	-	-	-	-	3	-	-	-	-	3
Morris	-	-	-	-	-	-	-	5	-	-	-	-	5
Total	9	-	-	-	-	-	-	8	-	89	33	1	140

[1]Agricultural Statistics Division. "Carlot Shipments of Fruits and Vegetables in Kansas". U. S. Dept. Agr., Bur. Agr. Econ. (Mimeo. ann. rpts.) 1926 to 1945.

[2]For Kansas shipments.

Table 10. Carlot shipments of potatoes by points of origin in Kansas during 1944 and 1945.[1]

Origin	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
						1944							
Doniphan													
Wathena	1	1	-	-	-	-	-	-	-	-	-	-	2
Douglas													
Eudora	-	-	-	-	-	-	17	-	-	-	-	-	17
Lawrence	-	-	-	-	-	-	147	2	-	-	-	-	149
Grant													
Ulysses	-	-	-	-	-	-	-	1	18	-	-	-	19
Jefferson													
Perry	-	-	-	-	-	-	31	12	-	-	-	-	43
Johnson													
Wilder	-	-	-	-	-	-	13	4	-	-	-	-	17
Leavenworth													
Linwood	-	-	-	-	-	-	1	2	-	-	-	-	3
Riley													
Manhattan	-	-	-	-	-	-	-	1	-	-	-	-	1
Scott													
Scott City	-	-	1	-	-	-	-	-	6	9	-	-	16
Shawnee													
Rossville	-	-	-	-	-	-	7	-	-	-	-	-	7
Topeka	-	-	-	-	-	-	37	28	-	-	-	-	65
Wyandotte													
Bonner Springs	-	-	-	-	-	-	14	16	-	-	-	-	30
Kansas City, Mo.[2]	-	-	-	-	-	-	25	3	-	-	-	-	28
Morris	-	-	-	-	-	-	53	-	-	-	-	-	53
Turner	-	-	-	-	-	-	24	-	-	-	-	-	24
Total	1	1	1	-	-	-	369	69	24	9	-	-	474

Table 10 (concl.).

	1945												
Douglas													
Eudora	-	-	-	-	-	-	17	-	-	-	-	-	17
Lawrence	-	-	1	-	-	4	149	2	-	-	-	-	156
Grant													
Ulysses	-	-	-	-	-	-	-	11	7	-	-	-	18
Jefferson													
Perry	-	-	-	-	-	-	26	7	-	-	-	-	33
Shawnee													
Rossville	-	-	-	-	-	-	11	-	-	-	-	-	11
Topeka	-	-	-	-	-	-	86	26	-	-	-	4	116
Wyandotte													
Bonner Springs	-	-	-	-	-	-	25	-	-	-	-	-	25
Kansas City, Mo.[2]	-	-	-	-	-	-	15	-	-	-	-	-	15
Morris	-	-	-	-	-	-	51	-	-	-	-	-	51
Turner	-	-	-	-	-	-	23	-	-	-	-	-	23
Total	-	-	1	-	-	4	403	46	7	-	-	4	465

[1]Agricultural Statistics Division. "Carlot Shipments of Fruits and Vegetables in Kansas". U. S. Dept. Agr., Bur. Agr. Econ. (Mimeo. ann. rpts.) 1926 to 1945.

[2]For Kansas shipments.

PRODUCTION TRENDS IN THE UNITED STATES

In studying production in a particular area, one must know something of similar production in other areas. Such information is necessary to determine the degree of competition that the new area may meet from other producing regions. It is also desirable to see, if possible, whether the demand for the new production will be increasing or decreasing.

These adjustments to demand may be reflected in production changes. Cycles in production may appear and may be caused by demand changes.

A study of production trends for a period of approximately 15 years was made to determine the general trends of acreages, yields, and total production of these four commodities in the United States. Trends were calculated by the use of the linear regression formula $b = \frac{Sxy}{Sx^2}$, in which X = the successive years or the independent variable and Y = production, acreage or yield, the dependent variable.

As pointed out in the methods of procedure, the starting and stopping point for the period under study were taken as nearlas possible to comparable phases of the cycle incolved in order to reduce bias. In some instances sharp upward changes occurred in 1943. These sharp changes were not included in the period for any particular trend because it was apparent that a change in the cycle had occurred. This change may or may not

be abnormal since sufficient time has not elapsed to properly study these latest changes.

It would be desirable to make trend studies for a much longer period of time to determine the length of the cycles, if such occur.

Commercial truck crop production for fresh market and for processing in the United States showed a decided upward trend from 1930 to 1945 as did production for processing. A summary of the linear regression study by crops follows.

Cantaloups

Yield per Acre. This study included the years 1930 to 1942 inclusive. The trend for the period was downward. There was a definite increase in yields in 1943.

Total Acres Harvested. The trend of the total acres of cantaloups and other muskmelons in the United States was downward for the period 1930 to 1945.

Total Production. The trend of production of cantaloups from 1930 to 1943 was downward. A sharp rise occurred in 1944.

Honeydew Melons

Yield per Acre. The trend of yield per acre of honeydew melons in the United States was downward during the period 1930 to 1945.

Acres Harvested. The total acreage harvested was downward

over the period 1930 to 1944.

Total Production. Total honeydew production in the United States was definitely downward during the 1930 to 1943 period. A definite upward trend occurred in 1944.

Onions

Yield per Acre. The trend of onion yields in the United States was upward during the period 1930 to 1943. A sharp upward increase occurred in 1944.

Total Acres Harvested. The trend of acres harvested during the period 1930 to 1945 was upward but the acres harvested each year fluctuated quite widely.

Total Production. The trend of total production was upward during the period 1930 to 1945.

Potatoes

Production by Twelve Early States.[1] These States are Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas and California. Production in these States was upward during the period 1930 to 1945.

Production by Seven Intermediate States.[2] These States are

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[1] See p. 102. 1946 Agricultural Outlook Charts. U. S. Dept. Agr., Bur. Agr. Econ. December, 1945.

[2] Ibid.

Delaware, Kansas, Kentucky, Maryland, Missouri, New Jersey, and Virginia. Production in these States was downward during the period 1930 to 1945.

Production by Thirty Late States.[3] These States are Arizona, California (N. Dist. and C. Dist.), Colorado, Connecticut, Idaho, Illinois, Indiana, Iowa, Maine, Massachusetts, Michigan, Minnesota, Montana, Nebraska, Nevada, New Hampshire, New Mexico, New York, North Dakota, Ohio, Oregon, Pennsylvania, Rhode Island, South Dakota, Utah, Vermont, Washington, West Virginia, Wisconsin, and Wyoming. Production in these States was slightly upward during the period 1930 to 1945.

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[3] 1946 Agricultural Outlook Charts, loc. cit.

Table 11. Regression studies of yields, acres harvested, and production of cantaloups, honeydew melons, onions and potatoes in the United States, 1930-45.

	Linear regression b[1]	Years
Cantaloups		
Yield per acre	-1.2088	1930-42
Total acres harvested	-1.0384	1930-45
Total production	-0.1276	1930-45
Honeydew melons		
Yield per acre	-3.8309	1930-45
Total acres harvested	-2.4978	1930-44
Total production	-1.5158	1930-43
Onions		
Yield per acre	1.3253	1930-43
Total acres harvested	1.9041	1930-45
Total production	2.5459	1930-43
Potatoes		
Total production		
12 early States	2.0366	1930-45
7 intermediate States	-0.3738	1930-45
30 late States	1.4602	1930-45
Commercial truck crops		
Total production		
For fresh market	0.1759	1931-45
For processing	0.2769	1930-44

[1] b = linear regression.

Summary of Production Trends

The results of the trend of production study indicate that for these vegetables some caution should be exercised in determining the place of Kansas in the national picture.

The trend production of cantaloups and honeydews was downward during the period 1930 to 1943 but sharp increases occurred in 1944, probably due to increased demand as a result of war activity.

Potato production was also increasing in all but seven States during the period 1930 to 1945. The total acres harvested in all cases tended to fluctuate more widely than the yield per acre.

The outlook was different in the case of onion production. The general trend of onion production from 1930 to 1945 was upward. The above facts indicate that possibly expansion in the field of onion and potato production is warranted more than for the two melons.

UNLOADS AT FOUR MARKETS

In order to determine the main outlets of the vegetables from Western Kansas, four important markets were selected for study. These markets were New York, Chicago, St. Louis and Kansas City, Missouri. In 1944 and 1945, rail shipments of

cantaloups from Kansas unloaded at these four markets comprised 32.7 percent of all rail shipments of cantaloups from Kansas; rail shipments of honeydew melons from the State unloaded at these markets included 41.5 percent of the total rail shipment of honeydews from Kansas; rail shipments of onions from Kansas at these markets made up 37.4 percent of the total rail shipment of onions; and rail shipments of potatoes from Kansas unloaded at the four markets accounted for 16.6 percent of all shipments of potatoes by rail from the State.

The period used in this study included the 10 years, 1936 to 1945, inclusive. It is to be noted, however, that unloads from Kansas of the four crops studied did not become important, with the exception of potatoes, until 1944.

Truck unloads reported were estimated to be about 90 percent of all truck unloads arriving at the various markets.

The figures tabulated below show the total unloads by rail, boat and truck at the four markets for the ten-year period, 1936-45:

Market	Cantaloups	Honeydews	Onions	Potatoes
New York	33,847	20,092	64,749	223,058
Chicago	17,143	2,877	27,127	163,881
St. Louis	4,718	578	8,472	51,501
Kansas City, Mo.	3,841	384	4,481	33,924

New York led in the unloads for all four commodities from all States. The rail carlot unloads, 1936-45, are summarized as follows:

Market	Cantaloups	Honeydews	Onions	Potatoes
New York*	22,496	20,087	41,741	123,147
Chicago	14,290	2,877	21,419	162,407
St. Louis	2,683	576	7,649	46,824
Kansas City, Mo.	2,032	383	3,828	30,954

*Rail and boat.

The truck unloads at the four markets for the same period were:

Market	Cantaloups	Honeydews	Onions	Potatoes
New York	11,351	5	23,008	99,911
Chicago	2,853	0	5,708	1,474
St. Louis	2,035	2	823	4,677
Kansas City, Mo.	1,809	1	653	2,970

Rail unloads from Kansas at the four markets for the period 1944 and 1945 are:

Market	Cantaloups	Honeydews	Onions	Potatoes
New York	5	99	25	-
Chicago	17	35	31	113
St. Louis	20	12	8	17
Kansas City	10	16	6	26

A study was not made of truck unloads from Kansas at the four markets due to the fact that information from some of the markets was not available.

St. Louis was the chief outlet for Kansas cantaloups shipped by rail during the period studied. New York led as a rail outlet for Kansas honeydews, while Chicago was first as a market for Kansas onions and potatoes shipped by rail.

More carlot shipments of the four vegetables by rail from Kansas were reported at Chicago during 1944 and 1945 than for the other three markets. It should be pointed out, however, that honeydew melons constituted the largest number of Kansas carlot shipments by rail to the four markets during 1944 and 1945, and most of these went to the New York market. It is, therefore, possible that future increased production of honeydews may result in New York approaching Chicago in importance as a rail outlet for Kansas vegetables. An added factor which might cause honeydews to take the lead is that potato production in the Kaw Valley of Kansas has shown a decrease in recent years.

SEASONALITY OF SHIPMENT AT THE FOUR MARKETS

It is a well-established fact among producers that day-to-day price changes are affected greatly by receipts at any particular market. An analysis was made to determine the seasonal pattern of unloads from all States for the four commodities at the four markets in order to determine if there was any relation between the seasonal pattern of unloads of a commodity at a market and the importance of that market as an outlet for Kansas vegetables. This was done to see whether or not adjustments could be made to bring Kansas vegetables to market at a time when receipts on the terminal markets were the smallest.

In the seasonal study, it was found that unloads were not reported for certain months since the marketing season covered,

in these cases, only a few months of the year. In no case was a month in which no shipments were reported called the month of smallest unloads because in these cases it was evident that such months did not represent the marketing season. As a result, where the months of largest and smallest receipts are indicated, they represent the months of largest and smallest unloads for the marketing season.

In nearly all instances a ten-year average of unloads by months for the period, 1936 to 1945, was computed. Those cases in which this period was not used have been indicated. Total monthly unloads were arrived at by combining monthly rail and boat unloads with monthly truck unloads.

New York Market

Cantaloups. The total number of unloads by rail, boat and truck of cantaloups at New York was largest in July. March was the month of smallest number of unloads. No unloads were recorded in January, February and December.

The largest number of rail and boat unloads of cantaloups occurred in July and the smallest in March. No unloads were recorded for January, February and December.

The largest number of truck unloads were recorded in September and the smallest number in May. No truck unloads were recorded for January, February, March, April, November or December.

A similar study was made of New York shipments from Kansas

in 1945. There were no truck unload data available so only rail shipments were used. The largest number of unloads of cantaloups from Kansas came in September and the smallest number in October since these were the only two months in which shipments were made.

Honeydew Melons. The total number of unloads of honeydews at New York was largest in August and smallest in December. Unloads were recorded for all months.

The total number of rail and boat unloads of honeydews was largest in August and smallest in December. Rail and boat unloads were recorded for all months.

Truck unloads of honeydews were recorded for only two months, July and August. More unloads were reported in July than August.

Rail carlot unloads of honeydews from Kansas were recorded for August, September and October in 1944 and 1945. The largest number of unloads for these three months came in September and the smallest number in August.

Onions. Total numbers of unloads of onions were largest in May for the early marketing season and in October for the late marketing season. The smallest number of unloads for each season were reported in July and December. Unloads were recorded for all months.

Numbers of rail and boat unloads were largest in May for the early marketing season and in October for the late season and smallest for each season in August and December.

Total truck unloads of onions were recorded for all months. The largest number was reported in August and the smallest number in May.

Rail carlot unloads of onions from Kansas were recorded in three months, October, November and December, for 1944 and 1945 with the largest number for these months in October and the smallest number in December.

Potatoes. Total numbers of unloads of potatoes were largest in June for the early marketing season and in October for the late season. The smallest number of unloads for each of the seasons were in September and December. Unloads were recorded for all months.

The numbers of rail and boat unloads of potatoes were largest in June and smallest in August. Unloads were recorded for all months.

Numbers of truck unloads were largest in August and smallest in May. There were no carlot unloads of potatoes recorded at New York from Kansas.

Chicago Market

The data for the Chicago market covers the ten-year period 1936 to 1945.

Cantaloups. Total carlot unloads of cantaloups were recorded for all months except January and February for the ten-year period. The largest numbers of unloads were reported in July and the smallest number in March.

The same results obtained above were found in the study of the rail unloads for the period.

Truck unloads of cantaloups were reported only for the five months, June to October. The largest numbers were in August and the smallest numbers in June.

Cantaloup rail unloads at Chicago from Kansas were recorded for 1944 and 1945 in September and October only, with the largest number coming in September and the smallest number in October. Data on truck unloads of cantaloups from Kansas at Chicago were not available.

Honeydew Melons. Total unloads of honeydews at Chicago were recorded for every month except January. The largest number was reported in August and the smallest in February.

Data for rail unloads of honeydews at Chicago were the same as for the above total unloads.

There were no truck unloads of honeydews reported for the years 1936 to 1945 at Chicago.

Total carlot unloads of honeydews from Kansas in 1944 and 1945 occurred in September and October, with the largest number reported in October and the smallest number in September.

Onions. Total carlot unloads of onions were recorded for all months at Chicago. For the early marketing season the largest numbers were in May and for the late season in October, with the numbers in October being the largest. The smallest numbers for each season occurred in August and December.

The same seasonality occurred in the rail unloads with the

exception that the number of May unloads was larger than the number reported in October.

Truck unloads of onions were reported for all months with the largest number for the early season in August and for the late season in December.

Rail unloads of onions from Kansas were reported in four months, July, August, October and November. The largest number came in October and the smallest number in November.

Potatoes. Total carlot unloads of potatoes were recorded at Chicago for all months. The largest number for the early season came in June and the largest number for the late season in October. The smallest number for each season came in August and December.

The same seasonality for rail unloads was observed as for total unloads.

Truck unloads were recorded for all months. The largest number occurred in September and the smallest number in June.

Rail unloads of potatoes from Kansas were recorded for five months; namely, March, June, July, August and September. The largest number occurred in July and the smallest number in September.

St. Louis Market

Data on unloads at St. Louis for the period 1936 to 1945, inclusive, were summarized.

Cantaloups. Total unloads of cantaloups were recorded for the months May to October. The largest number was reported in July and the smallest number in May.

The same seasonality was observed for rail unloads as for total unloads.

Total truck carlot unloads of cantaloups were reported for the same period as for total unloads. The largest numbers were reported in July and the smallest in May.

Rail unloads of cantaloups from Kansas in 1944 and 1945 were reported in three months, September, October and November. The largest numbers occurred in October and the smallest numbers in November.

Honeydew Melons. Unloads of honeydews were reported at St. Louis from June to November, with the largest number of carloads coming in July and the smallest number in November.

The same seasonality was observed for rail unloads as for total unloads.

Total truck unloads were reported only for the month of August. Rail unloads of honeydews at St. Louis from Kansas in 1944 and 1945 were reported in September and October, with the same number of unloads for each month.

Onions. Total unloads of onions at St. Louis were reported for all months. The largest number for the early season was reported in May, while the largest number for the late season came in September. The smallest number for each season came in March and July.

The seasonality of rail unloads was the same as for total

unloads.

Truck unloads of onions at St. Louis were reported for all months. The largest numbers of unloads were reported in June and the smallest in November.

Rail unloads of onions from Kansas for the period 1936 to 1945 at St. Louis were reported from July to November with the largest number in October, while in September and November the same number of unloads was reported. These months tied for the smallest number.

Potatoes. Total unloads of potatoes were reported for all months at St. Louis. June was the month with the largest number of unloads, with December as the month with the smallest number of unloads.

Rail unloads of potatoes were reported for all months with the largest number for the early season occurring in May and the largest number for the late season occurring in October. May unloads were larger than October. The months of smallest number of unloads for each season were July and December.

Truck unloads of potatoes were reported for all months. July was the month of largest number of unloads. The smallest number of unloads came in December.

Rail unloads from Kansas were reported for the five months July to November. The largest number of unloads came in July and the smallest number in November.

Kansas City, Missouri Market

Kansas City was the last market studied, and the study was conducted much in the same manner as that of the other markets.

Cantaloups. Total unloads of cantaloups at Kansas City were reported for the months May to October. The largest number of unloads was reported in August and the smallest number in October.

Rail unloads were reported from May to October at Kansas City. The largest number of unloads was reported in July and the smallest number in October.

Truck unloads of cantaloups were reported from May to October but the largest number occurred in August and the smallest in May.

Rail unloads of cantaloups from Kansas at Kansas City, Missouri, for 1944 and 1945 were reported for August, September and October. August and October tied as the month of the largest number of unloads with September as the month of the smallest number of unloads.

Honeydew Melons. Total unloads of honeydews were reported from June to December. The largest number of unloads came in July and the smallest number came in December.

The seasonality of rail unloads was the same as that of total unloads.

Truck unloads of honeydews at Kansas City were reported for only the month of September.

Rail unloads of honeydews from Kansas for the years 1944 and 1945 were reported in August, September and October, with September as the month of the largest number of unloads and October the month of the lowest number of unloads.

Onions. Total unloads of onions at Kansas City were reported for all months. The largest number of unloads in the early season came in April and the largest number for the late season was reported in September. The number of unloads in September was larger than the number of unloads in April. July and December were the months of the smallest number of unloads for each season.

The seasonality of rail unloads of onions at Kansas City was the same as for total unloads.

Truck unloads of onions were reported for all months at Kansas City. August was the month of the largest number of unloads and January was the month of the smallest number of unloads.

Rail unloads of onions from Kansas for 1944 and 1945 were reported for only the four months, August to November. August was the month of the largest number of unloads, with equal numbers of shipments being made the other three months.

Potatoes. Total unloads of potatoes were reported for all months at Kansas City. The largest number of unloads for the early season was reported in May and the largest number for the late season came in October. The months of the smallest number for each season were April and August.

The seasonality of rail unloads was the same as total

unloads with the exception of the months of smallest number of unloads, which for the early and late season were April and July.

Truck unloads were reported for all months. The month of the largest number of unloads was July and February was the month of the smallest number of unloads.

Complete data on rail unloads of potatoes from Kansas were obtainable at this time only for 1944 and 1945. Unloads were reported in June, July and October. July was the peak month and June the low month.

Unload Data on a Percentage Basis

Tables 12, 13, 14 and 15 show the average monthly unloads in percent of average yearly total by type of unload for the four commodities at Chicago for the period 1936-45. The same data are shown graphically in Figs. 5 to 20, inclusive.

Table 12. Average monthly unloads in percent of average yearly total by type of unloads for the four commodities at New York, 1936-45.

Type of unload	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Cantaloups													
Total carlot	-	-	-	0.21	2.94	18.00	31.27	28.84	15.81	2.87	0.06	-	100.0
Rail and boat	-	-	0.01	0.32	4.42	26.47	34.09	13.96	16.51	4.13	0.09	-	100.0
Truck	-	-	-	-	0.01	1.22	25.66	58.33	14.41	0.37	-	-	100.0
Rail from Kansas[1]	-	-	-	-	-	-	-	-	60.00	40.00	-	-	100.0
Honeydew melons													
Total carlot	0.99	1.70	2.36	2.77	1.41	4.72	23.44	25.16	22.63	12.20	2.34	0.28	100.0
Rail and boat	0.99	1.70	2.36	2.77	1.41	4.73	23.42	25.16	22.63	12.21	2.34	0.28	100.0
Truck	-	-	-	-	-	-	80.00	20.00	-	-	-	-	100.0
Rail from Kansas[1]	-	-	-	-	-	-	-	13.13	58.59	28.28	-	-	100.0
Onions													
Total carlot	7.12	7.08	7.40	7.92	13.56	8.71	7.01	7.23	9.29	10.04	8.10	6.54	100.0
Rail and boat	6.80	7.45	7.57	10.30	20.59	12.86	3.85	1.86	7.22	7.95	7.20	6.35	100.0
Truck	7.69	6.40	7.10	3.59	0.80	1.19	12.74	16.97	13.05	13.82	9.75	6.90	100.0
Rail from Kansas[1]	-	-	-	-	-	-	-	-	-	60.00	28.00	12.00	100.0
Potatoes													
Total carlot	6.55	6.42	7.91	8.91	9.86	12.20	9.43	8.28	8.25	8.53	7.26	6.40	100.0
Rail and boat	6.99	8.27	11.31	14.88	17.17	17.86	5.62	1.60	1.99	3.97	4.61	5.73	100.0
Truck	6.02	4.14	3.72	1.54	0.84	5.22	14.14	16.51	15.96	14.16	10.53	7.22	100.0
Rail from Kansas	-	-	-	-	-	-	-	-	-	-	-	-	-

[1]These data are for the years 1944 and 1945 only.

Table 13. Average monthly unloads in percent of average yearly total by type of unloads for the four commodities at Chicago, 1936-45.

Type of unload	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Cantaloups													
Total carlot	-	-	-	0.17	2.30	21.98	35.47	22.53	14.21	3.27	0.06	0.01	100.0
Rail	-	-	0.01	0.21	2.76	26.31	37.67	16.85	12.78	3.33	0.07	0.01	100.0
Truck	-	-	-	-	-	0.28	27.13	55.62	16.09	0.88	-	-	100.0
Rail from Kansas[1]	-	-	-	-	-	-	-	-	64.71	35.29	-	-	100.0
Honeydew melons													
Total carlot	-	0.04	0.24	0.28	0.24	5.28	23.98	24.75	23.57	17.66	3.75	0.21	100.0
Rail	-	0.04	0.24	0.28	0.24	5.28	23.98	24.75	23.57	17.66	3.75	0.21	100.0
Truck[2]													
Rail from Kansas[1]	-	-	-	-	-	-	-	-	42.86	57.14	-	-	100.0
Onions													
Total carlot	6.58	6.48	6.12	7.35	10.89	9.57	7.88	6.87	11.42	12.30	8.12	6.42	100.0
Rail	5.70	5.58	4.99	7.88	13.37	11.49	7.85	4.72	11.54	12.74	8.15	5.99	100.0
Truck	9.84	9.84	10.37	5.38	1.58	2.35	7.99	14.96	10.99	10.65	7.99	8.06	100.0
Rail from Kansas	13.33	-	-	-	-	-	13.33	24.45	-	40.00	8.89	-	100.0
Potatoes													
Total carlot	7.14	7.05	8.15	7.25	8.94	9.95	9.08	8.08	8.63	10.16	8.57	7.00	100.0
Rail	7.15	7.07	8.17	7.25	8.97	10.02	9.12	8.06	8.51	10.13	8.57	6.98	100.0
Truck[3]	7.20	5.69	6.72	7.20	6.47	2.29	4.40	10.70	22.66	13.51	6.04	7.12	100.0
Rail from Kansas	-	-	7.14	-	-	5.05	78.76	8.70	.35	-	-	-	100.0

[1]These data are for the years 1944 and 1945 only.

[2]Data not available.

[3]For the years 1940 to 1945 only.

Table 14. Average monthly unloads in percent of average yearly total by type of unloads for the four commodities at St. Louis, 1936-45.

Type of unload	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Cantaloups													
Total carlot	-	-	-	-	1.42	19.22	38.15	25.31	14.31	1.59	-	-	100.0
Rail	-	-	-	-	2.46	32.17	42.79	4.32	15.69	2.57	-	-	100.0
Truck	-	-	-	-	0.05	2.16	32.04	52.97	12.48	0.30	-	-	100.0
Rail from Kansas[1]	-	-	-	-	-	-	-	-	20.00	75.00	5.00	-	100.0
Honeydew melons													
Total carlot	-	-	-	-	-	4.85	26.30	23.01	24.39	20.07	1.38	-	100.0
Rail	-	-	-	-	-	4.87	26.39	22.75	24.48	20.14	1.37	-	100.0
Truck	-	-	-	-	-	-	-	100.0	-	-	-	-	100.0
Rail from Kansas[1]	-	-	-	-	-	-	-	-	50.0	50.0	-	-	100.0
Onions													
Total carlot	7.17	5.76	5.51	7.33	9.87	7.60	5.44	7.72	15.91	13.14	8.29	6.26	100.0
Rail	7.30	5.88	5.63	7.20	9.99	6.88	4.94	7.15	16.16	13.74	8.79	6.34	100.0
Truck	6.08	4.62	4.37	8.51	8.75	14.34	10.08	13.00	13.61	7.53	3.64	5.47	100.0
Rail from Kansas	-	-	-	-	-	-	21.43	21.43	7.14	42.86	7.14	-	100.0
Potatoes													
Total carlot	7.60	7.14	10.03	8.48	10.53	11.65	7.84	7.06	7.63	8.62	7.09	6.33	100.0
Rail	8.31	7.80	10.95	9.19	11.27	10.56	3.77	6.36	7.87	9.27	7.74	6.92	100.0
Truck	0.51	0.51	0.86	1.37	3.16	22.56	48.64	14.07	5.15	2.14	.62	.41	100.0
Rail from Kansas	-	-	-	-	-	-	70.67	20.00	2.67	5.33	1.33	-	100.0

[1]These data are for the years 1944 and 1945 only.

Table 15. Average monthly unloads in percent of average yearly total by type of unloads for the four commodities at Kansas City, Missouri, 1936-45.

Type of unload	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
Cantalouns													
Total carlot	-	-	-	-	2.06	17.39	31.37	37.67	10.88	0.63	-	-	100.0
Rail	-	-	-	-	3.84	32.43	35.53	13.29	14.27	0.59	-	-	100.0
Truck	-	-	-	-	0.06	0.50	26.64	65.06	7.08	0.66	-	-	100.0
Rail from Kansas[1]	-	-	-	-	-	-	-	10.00	80.00	10.00	-	-	100.0
Honeydew melons													
Total carlot	-	-	-	-	-	6.77	33.86	21.61	28.65	8.07	0.78	0.26	100.0
Rail	-	-	-	-	-	6.79	33.94	21.67	28.46	8.10	0.78	0.26	100.0
Truck	-	-	-	-	-	-	-	-	100.0	-	-	-	100.0
Rail from Kansas[1]	-	-	-	-	-	-	-	18.75	68.75	12.50	-	-	100.0
Onions													
Total carlot	8.70	6.56	6.02	8.37	8.26	7.14	5.31	8.64	13.84	13.52	7.61	6.03	100.0
Rail	9.93	7.37	6.63	8.52	7.58	5.77	2.98	6.48	14.99	14.89	8.12	6.74	100.0
Truck	1.53	1.84	2.45	7.50	12.25	15.16	18.99	21.29	7.05	5.51	4.59	1.84	100.0
Rail from Kansas[1]	-	-	-	-	-	-	-	50.00	16.67	16.67	16.66	-	100.0
Potatoes													
Total carlot	8.50	8.00	10.20	7.18	10.18	8.91	7.68	7.01	7.93	8.87	7.66	7.88	100.0
Rail	9.18	8.67	10.99	7.63	11.01	8.50	4.15	5.96	8.01	9.28	8.18	8.44	100.0
Truck	1.38	1.04	1.92	2.46	1.58	13.20	44.51	17.95	7.04	4.58	2.29	2.05	100.0
Rail from Kansas[1]	-	-	-	-	-	7.90	84.00	-	-	8.10	-	-	100.0

[1]These data are for the years 1944 and 1945 only.

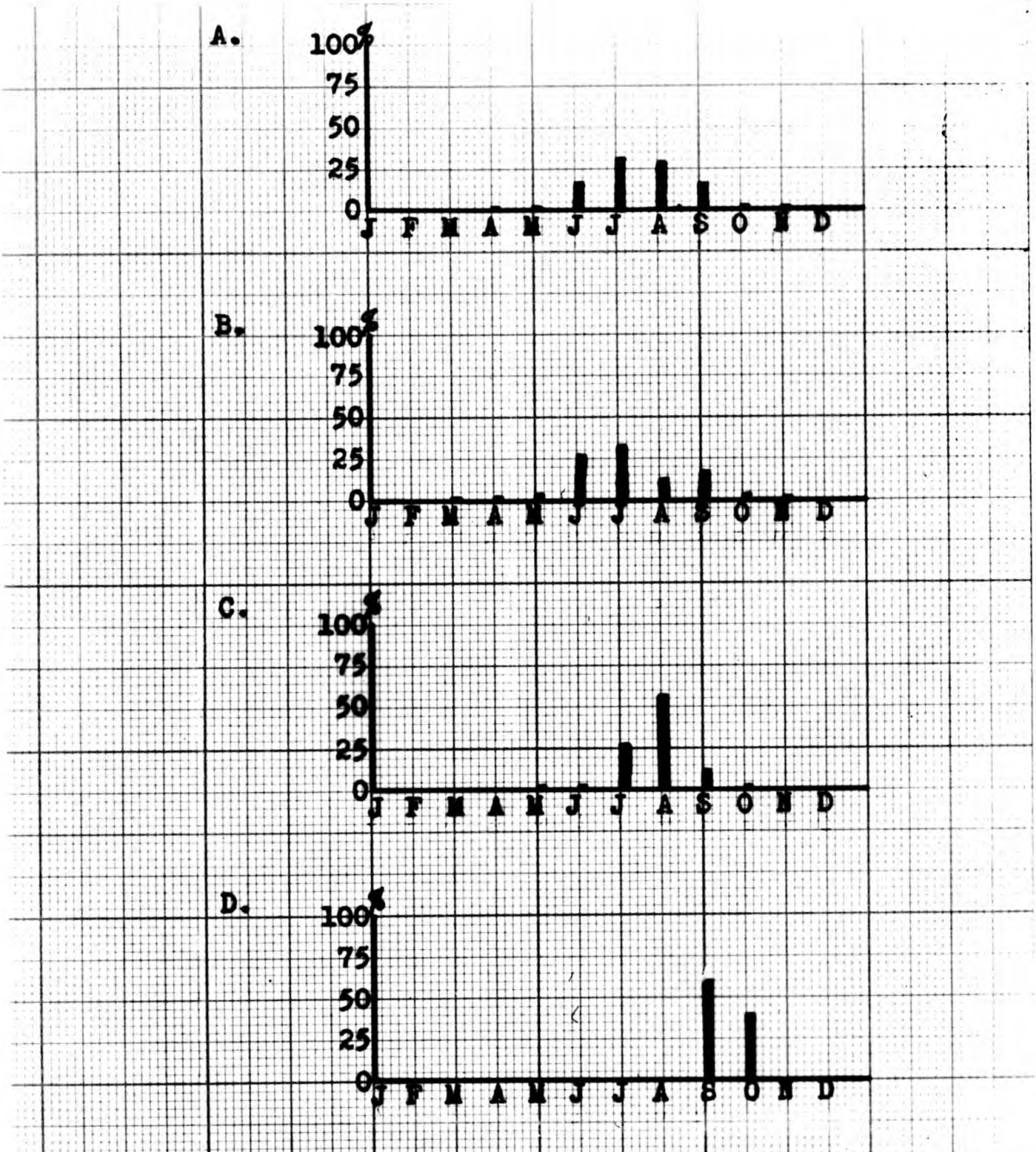

Fig. 5. Cantaloup unloads at New York.
A. Monthly percent of 10-year average cantaloup car lot unloads, 1936-45.
B. Monthly percent of 10-year average cantaloup rai and boat unloads, 1936-45.
C. Monthly percent of 10-year average cantaloup tru unloads, 1936-45.
D. Monthly percent of 1944-45 average cantaloup rai unloads from Kansas.

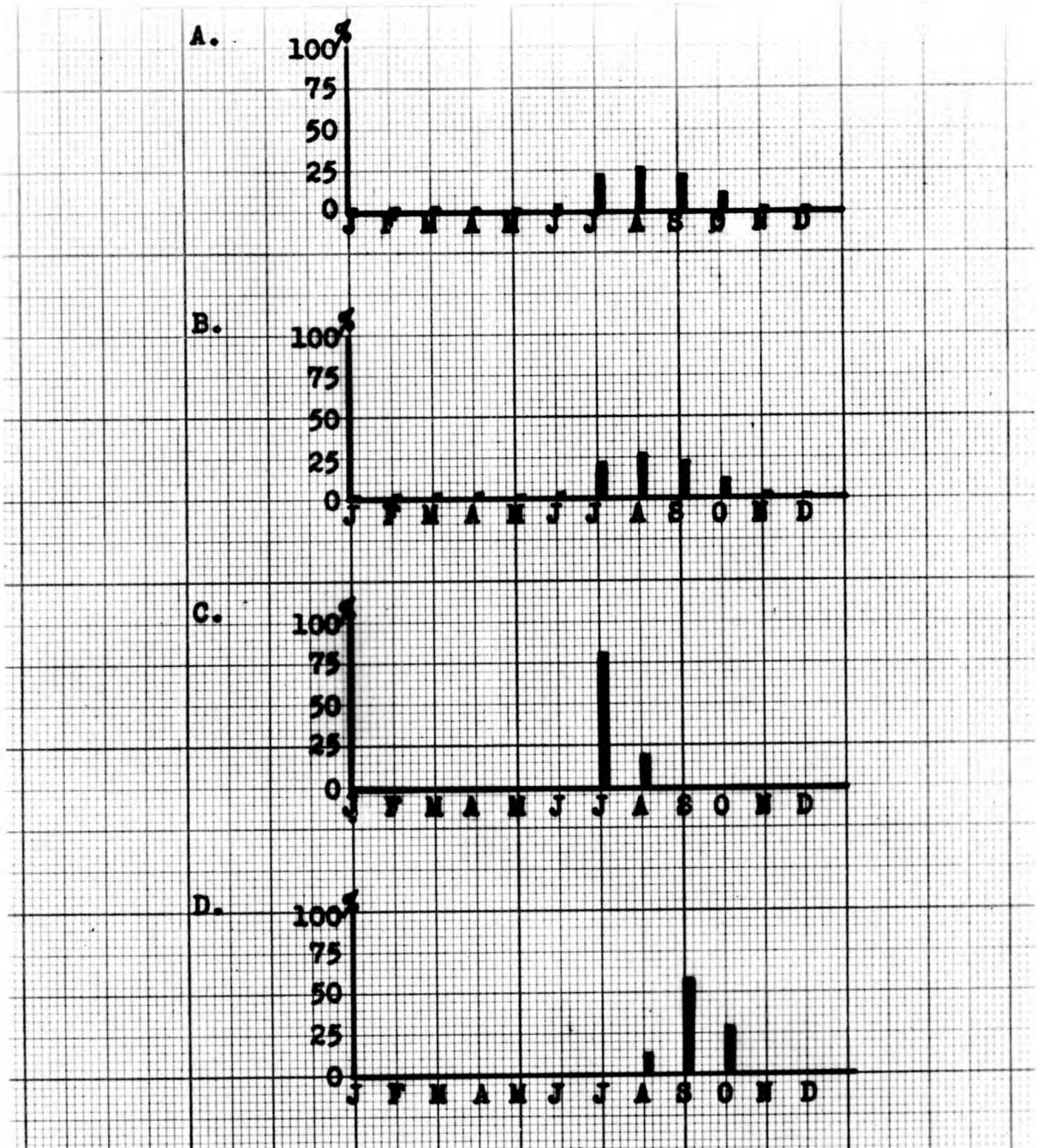

Fig. 6. Honeydew melon unloads at New York.
A. Monthly percent of 10-year average honeydew car-lot unloads, 1936-45.
B. Monthly percent of 10-year average honeydew rail and boat unloads, 1936-45.
C. Monthly percent of 10-year average honeydew truck unloads, 1936-45.
D. Monthly percent of 1944-45 average honeydew rail unloads from Kansas.

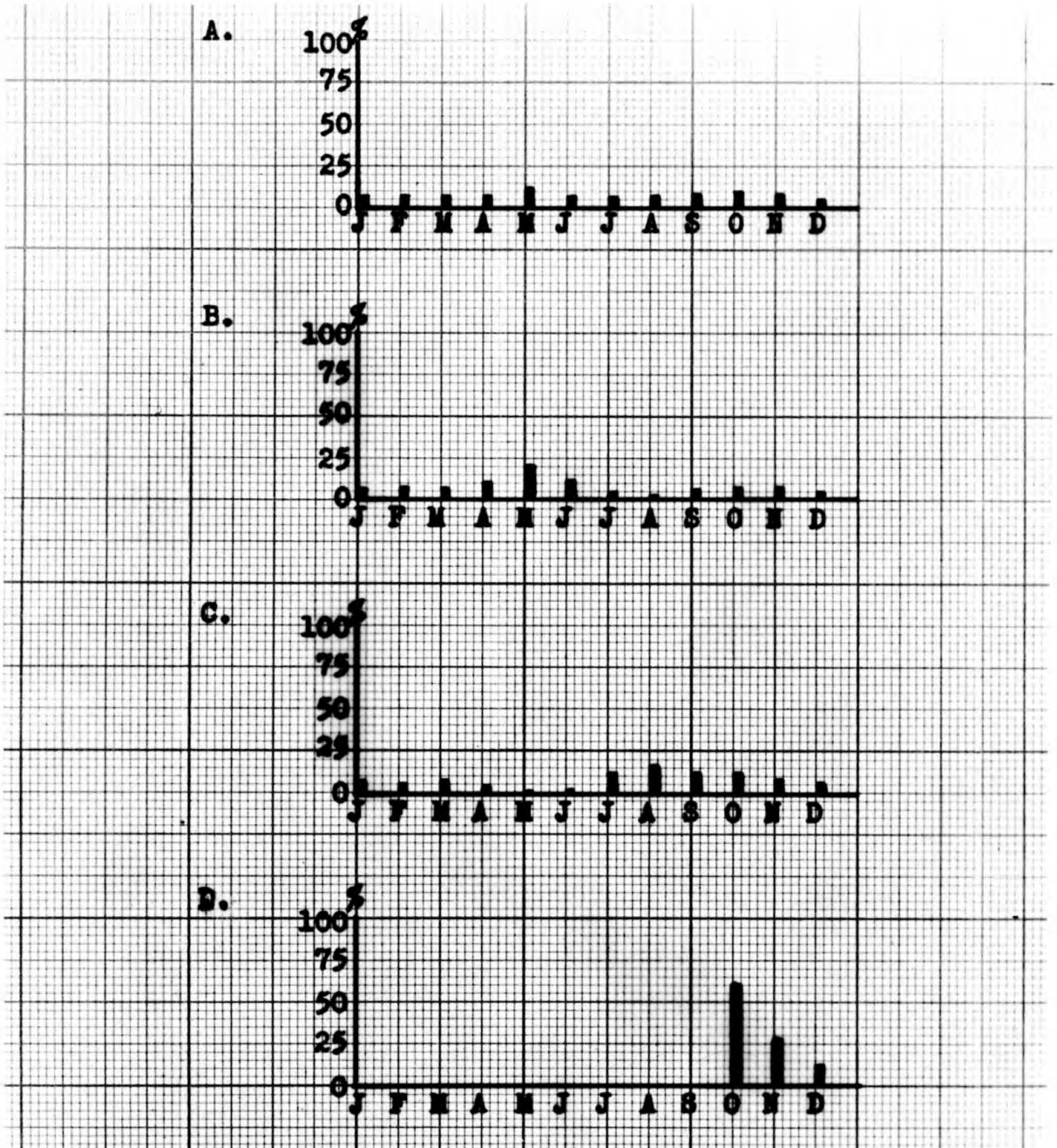

Fig. 7. Onion unloads at New York.
A. Monthly percent of 10-year average onion carlot unloads, 1936-45.
B. Monthly percent of 10-year average onion rail and boat unloads, 1936-45.
C. Monthly percent of 10-year average onion truck unloads, 1936-45.
D. Monthly percent of 1944-45 average onion rail unloads from Kansas.

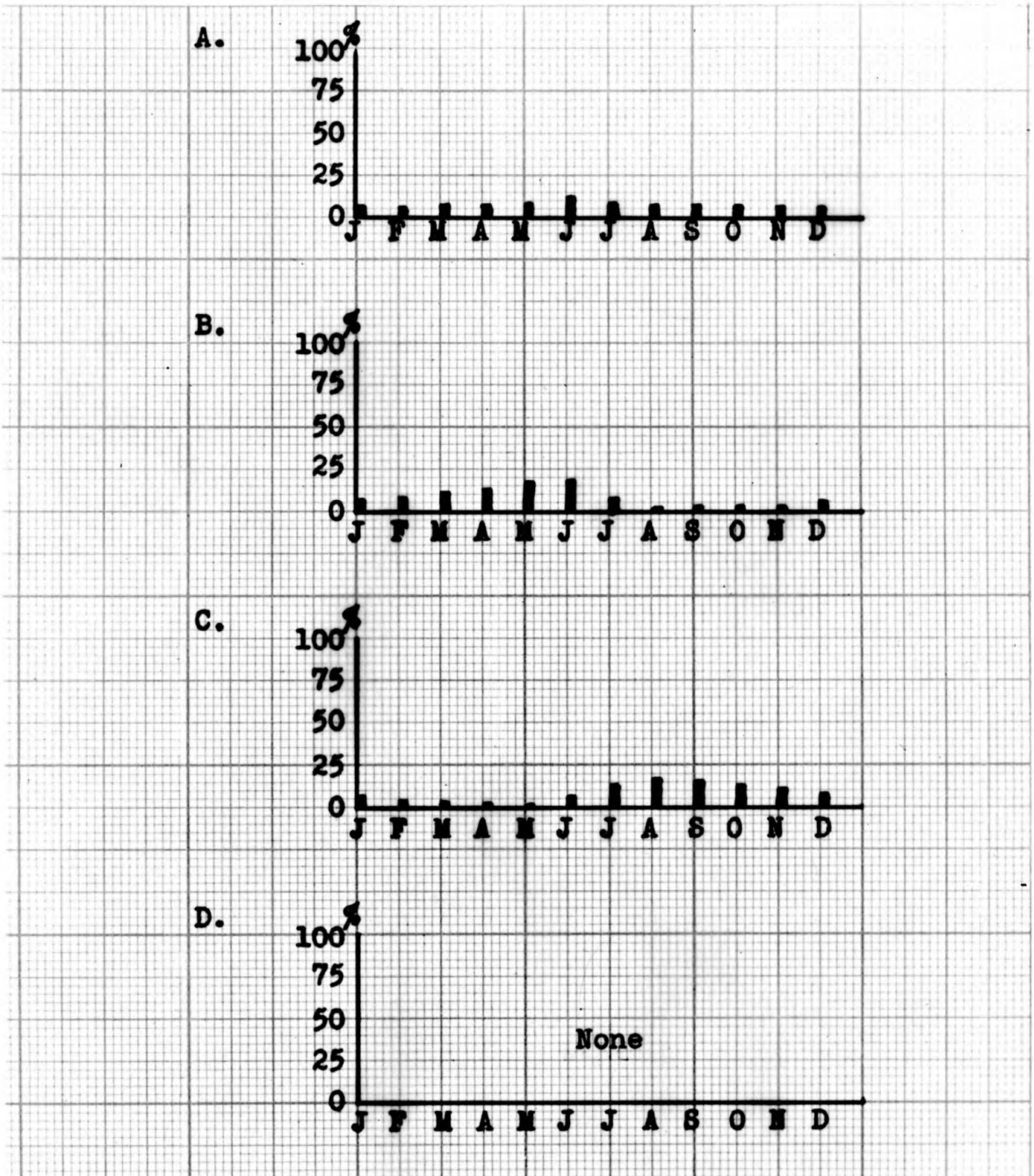

Fig. 8. Potato unloads at New York.
A. Monthly percent of 10-year average potato carlot unloads, 1936-45.
B. Monthly percent of 10-year average potato rail and boat unloads, 1936-45.
C. Monthly percent of 10-year average potato truck unloads, 1936-45.
D. There were no potato unloads at New York from Kansas for the 10-year period, 1936-45.

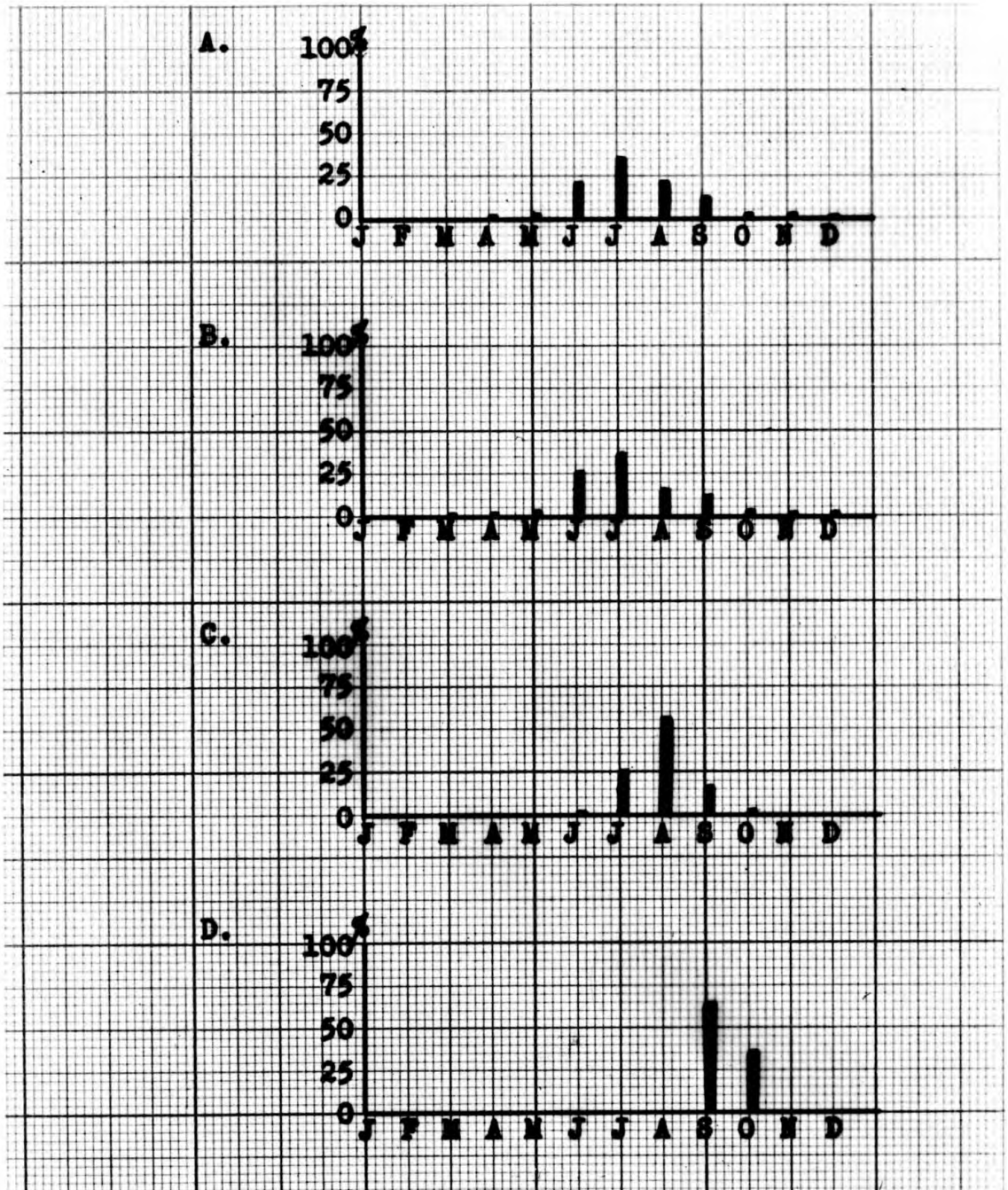

Fig. 9. Cantaloup unloads at Chicago.
A. Monthly percent of 10-year average cantaloup carlot unloads, 1936-45.
B. Monthly percent of 10-year average cantaloup rail unloads, 1936-45.
C. Monthly percent of 1944-45 average cantaloup truck unloads.
D. Monthly percent of 1944-45 average cantaloup rail unloads from Kansas.

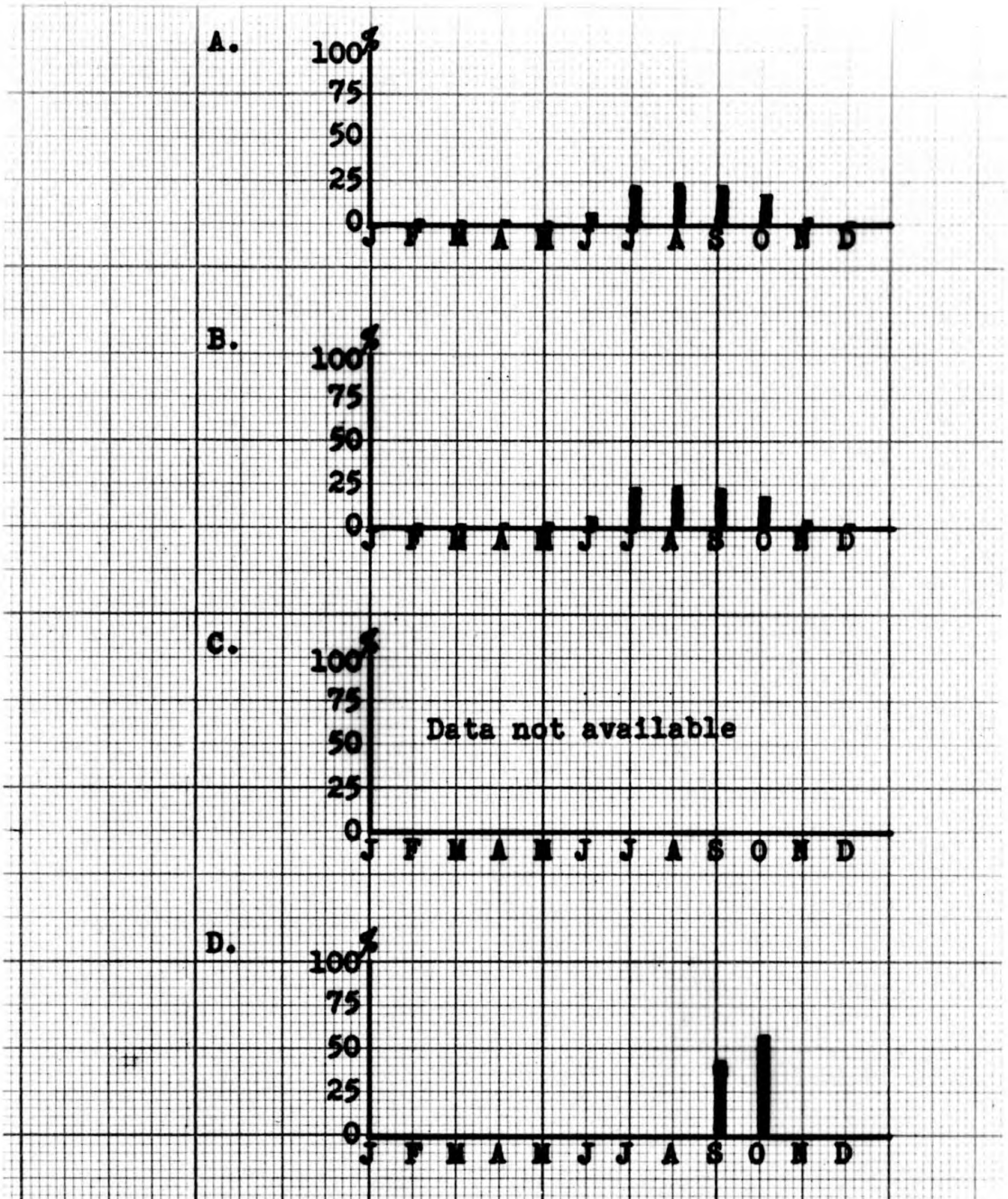

Fig. 10. Honeydew melon unloads at Chicago.
A. Monthly percent of 10-year average honeydew carlot unloads, 1936-45.
B. Monthly percent of 10-year average honeydew rail unloads, 1936-45.
C. Honeydew truck unload data is not available for the 10-year period 1936-45.
D. Monthly percent of 1944-45 average honeydew rail unloads from Kansas.

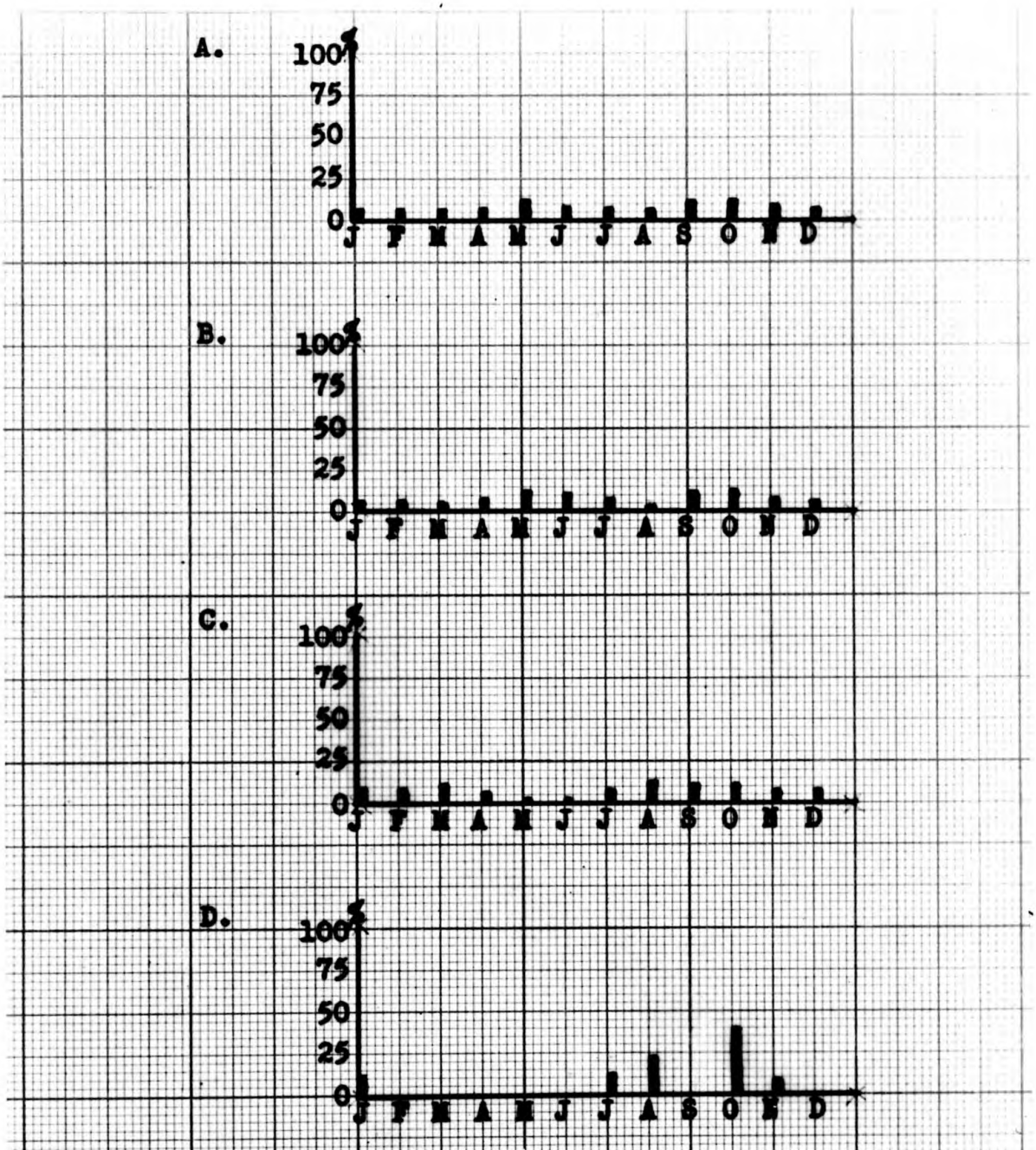

Fig. 11. Onion unloads at Chicago.
A. Monthly percent of 10-year average onion carlot unloads, 1936-45.
B. Monthly percent of 10-year average onion rail unloads, 1936-45.
C. Monthly percent of 10-year average onion truck unloads, 1936-45.
D. Monthly percent of 10-year average onion rail unloads from Kansas, 1936-45.

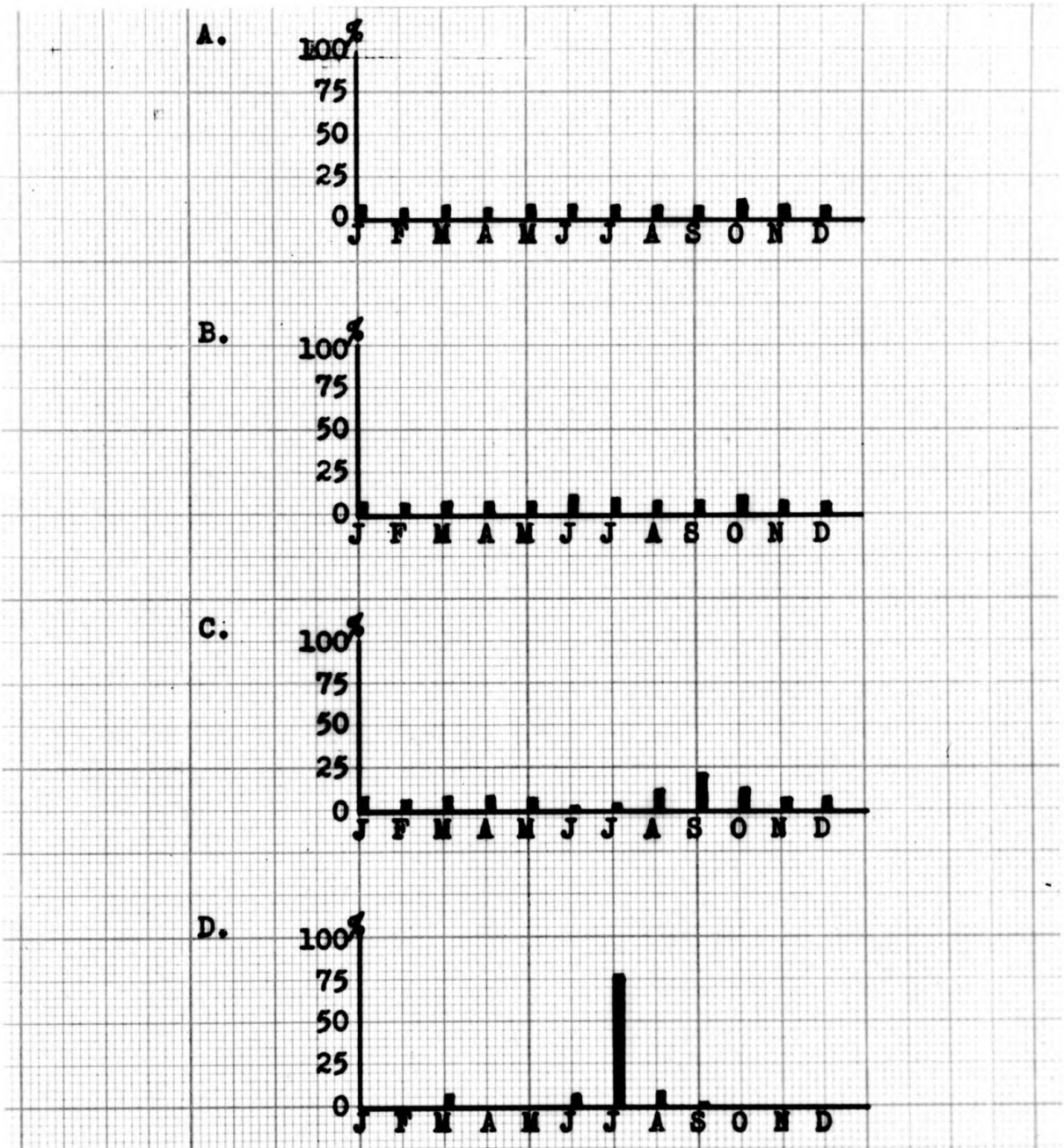

Fig. 12. Potato unloads at Chicago.
A. Monthly percent of 10-year average potato carlot unloads, 1936-45.
B. Monthly percent of 10-year average potato rail unloads, 1936-45.
C. Monthly percent of 5-year average potato truck unloads, 1940-45.
D. Monthly percent of 10-year average potato rail unloads from Kansas, 1936-45.

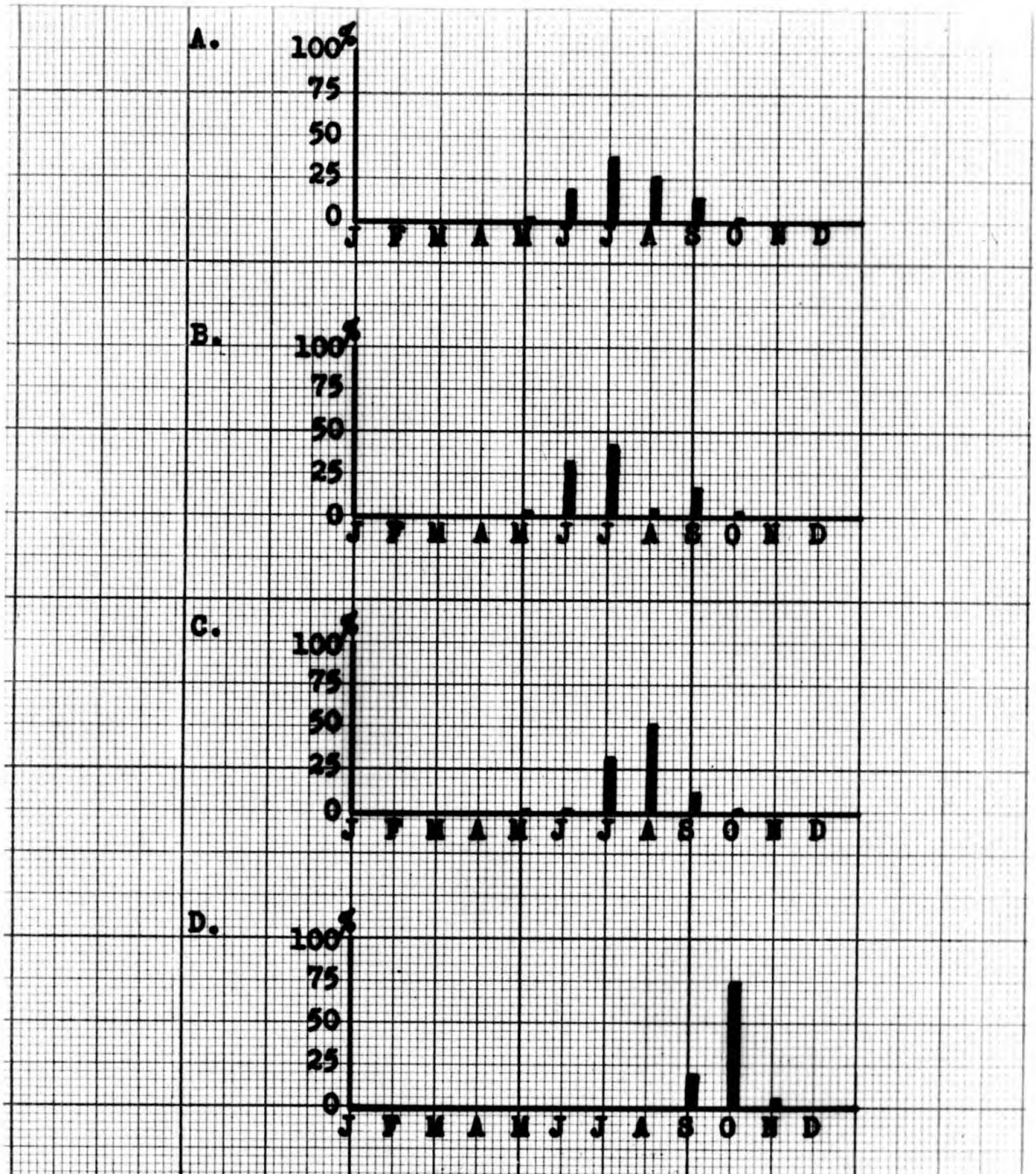

Fig. 13. Cantaloup unloads at St. Louis.
A. Monthly percent of 10-year average cantaloup carlot unloads, 1936-45.
B. Monthly percent of 10-year average cantaloup rail unloads, 1936-45.
C. Monthly percent of 10-year average cantaloup truck unloads, 1936-45.
D. Monthly percent of 1944-45 average cantaloup rail unloads from Kansas.

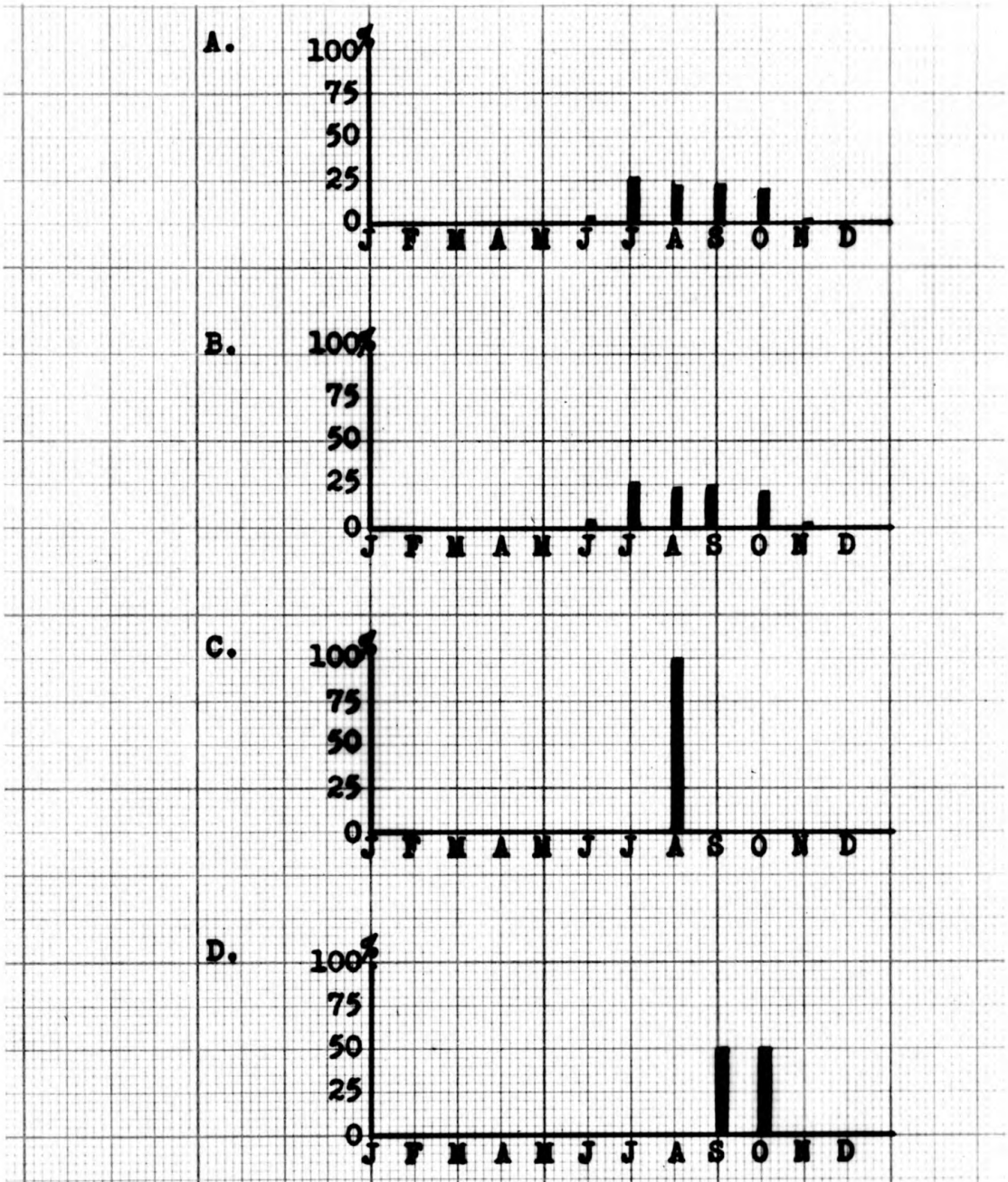

Fig. 14. Honeydew melon unloads at St. Louis.
A. Monthly percent of 10-year average honeydew carlot unloads, 1936-45.
B. Monthly percent of 10-year average honeydew rail unloads, 1936-45.
C. Monthly percent of 10-year average honeydew truck unloads, 1936-45.
D. Monthly percent of 1944-45 average honeydew rail unloads from Kansas.

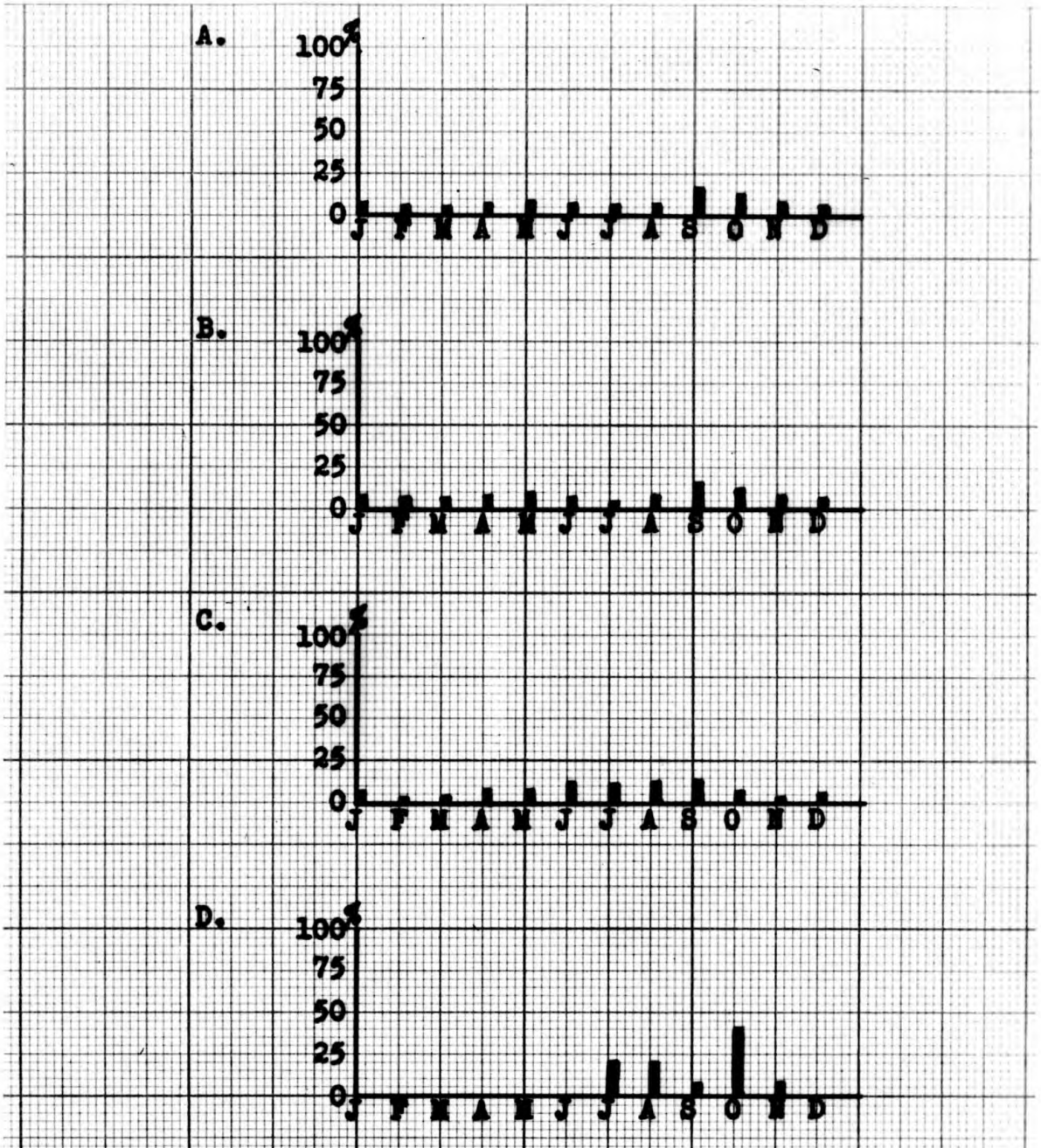

Fig. 15. Onion unloads at St. Louis.
A. Monthly percent of 10-year average onion carlot unloads, 1936-45.
B. Monthly percent of 10-year average onion rail unloads, 1936-45.
C. Monthly percent of 10-year average onion truck unloads, 1936-45.
D. Monthly percent of 10-year average onion rail unloads from Kansas, 1936-45.

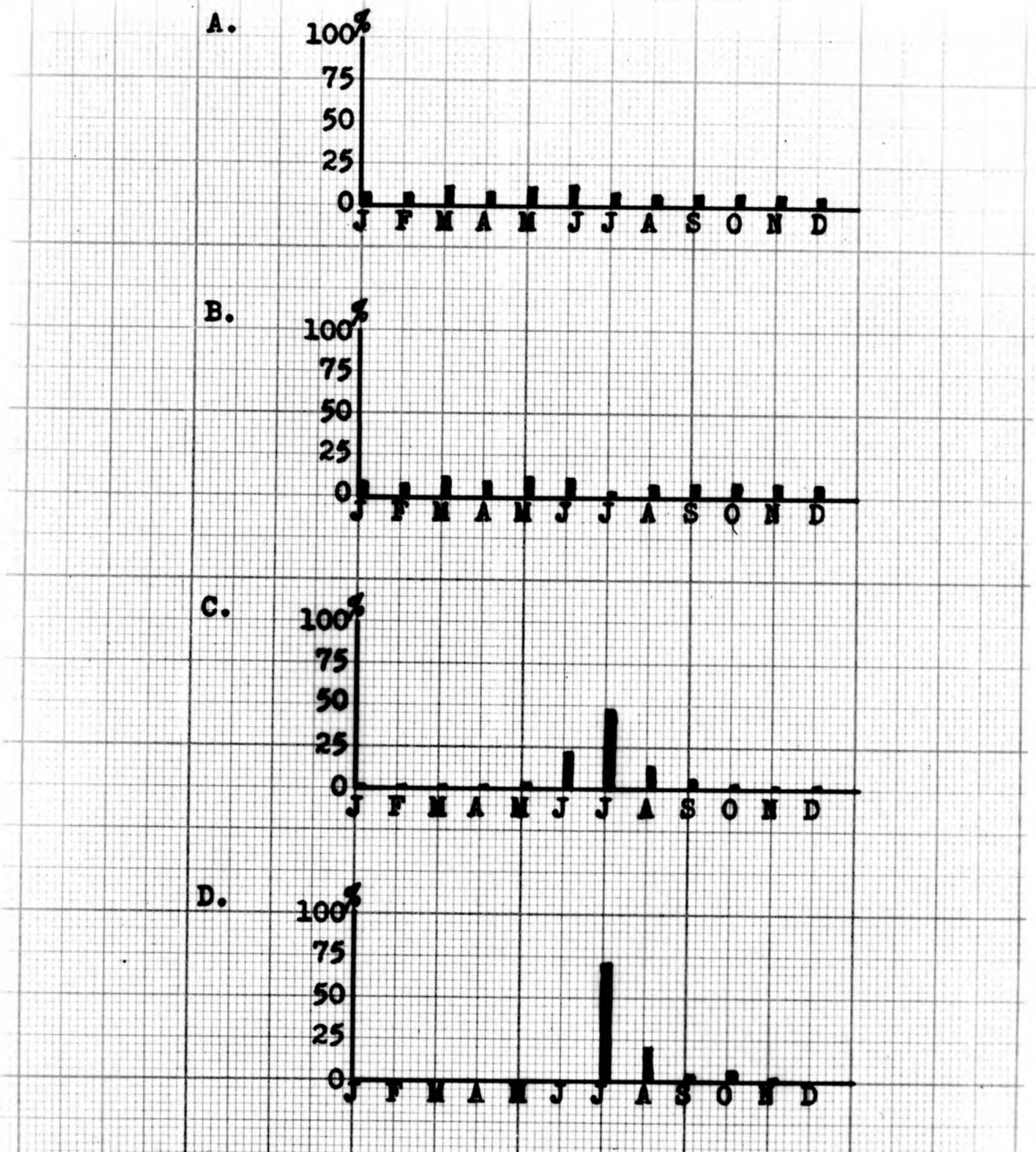

Fig. 16. Potato unloads at St. Louis.
A. Monthly percent of 10-year average potato carlot unloads, 1936-45.
B. Monthly percent of 10-year average potato rail unloads, 1936-45.
C. Monthly percent of 10-year average potato truck unloads, 1936-45.
D. Monthly percent of 10-year average potato rail unloads from Kansas, 1936-45.

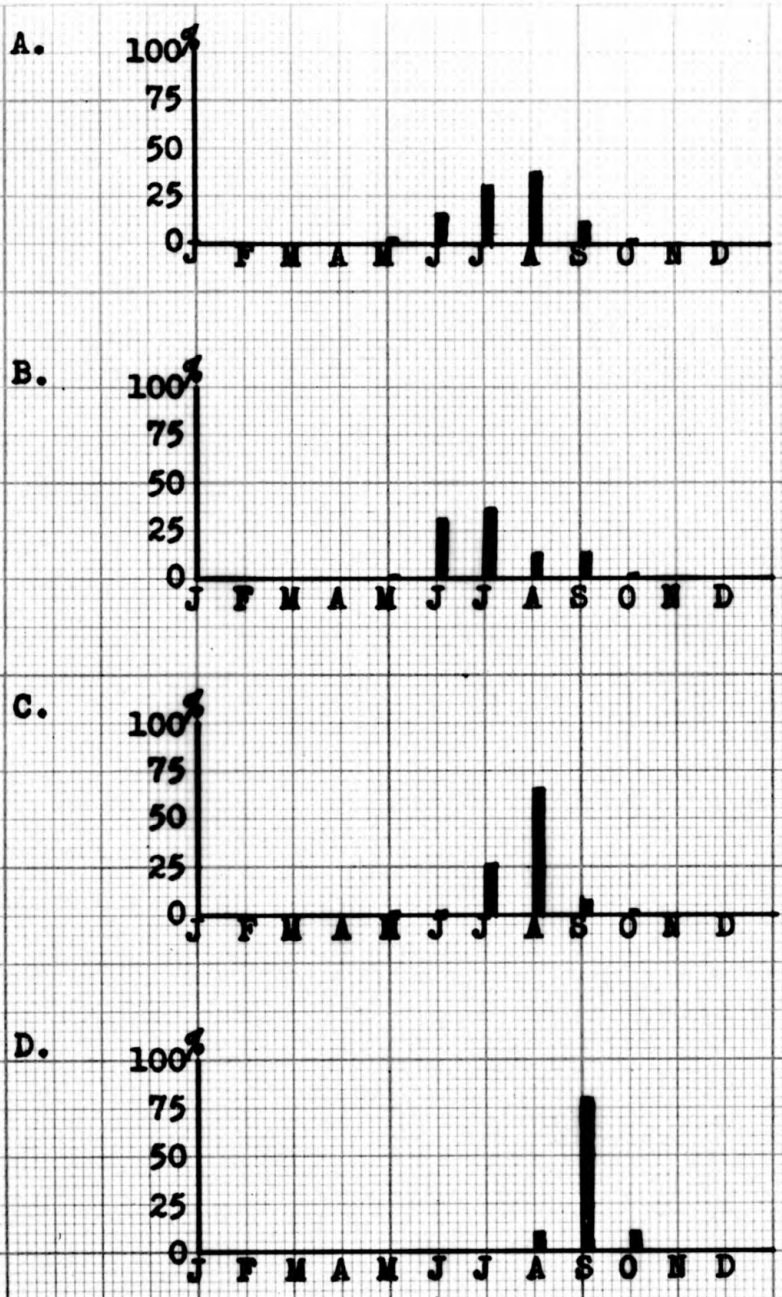

Fig. 17. Cantaloup unloads at Kansas City, Missouri.
A. Monthly percent of 10-year average cantaloup carlot unloads, 1936-45.
B. Monthly percent of 10-year average cantaloup rail unloads, 1936-45.
C. Monthly percent of 10-year average cantaloup truck unloads, 1936-45.
D. Monthly percent of 1944-45 average cantaloup rail unloads from Kansas.

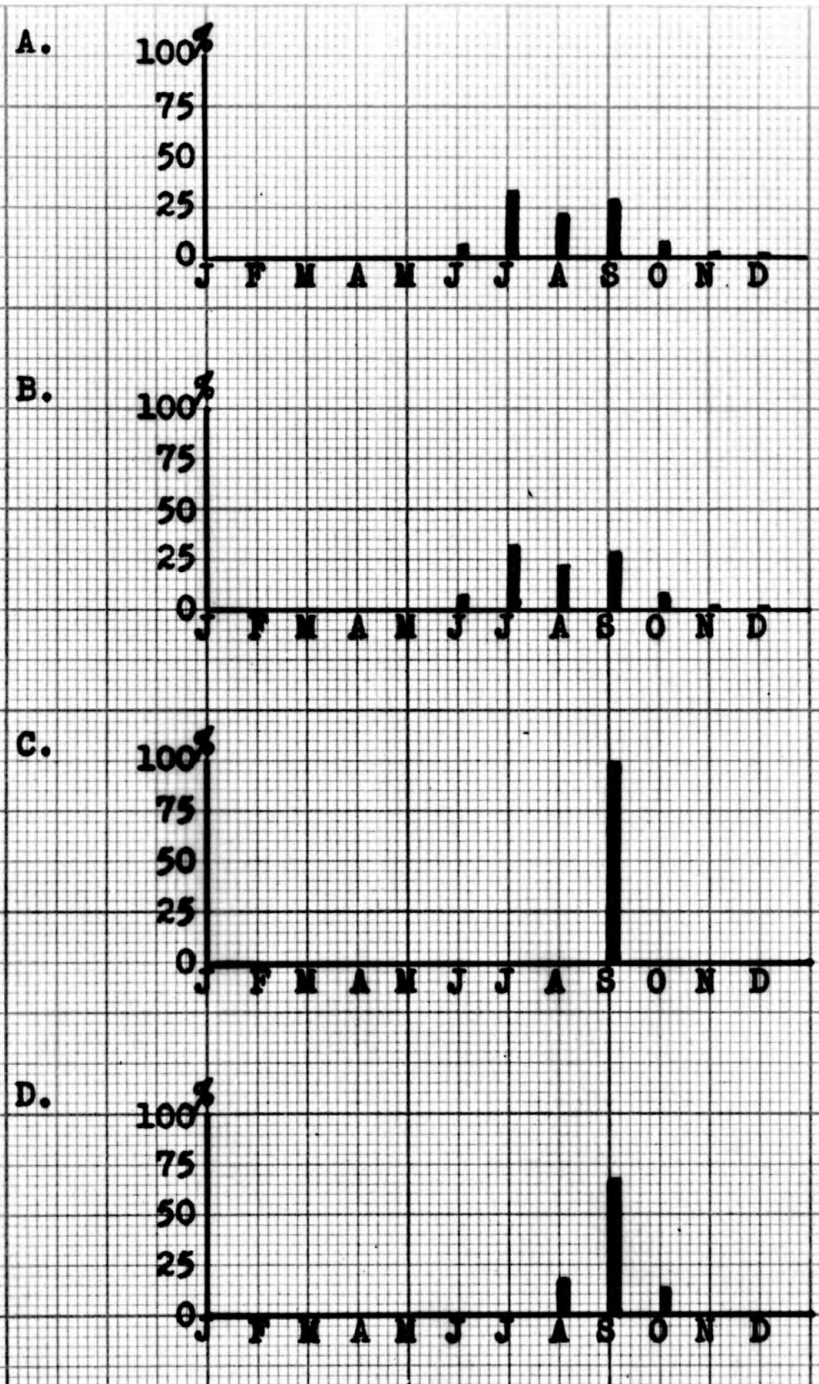

Fig. 18. Honeydew melon unloads at Kansas City, Missouri.
A. Monthly percent of 10-year average honeydew carlot unloads, 1936-45.
B. Monthly percent of 10-year average honeydew rail unloads, 1936-45.
C. Monthly percent of 10-year average honeydew truck unloads, 1936-45.
D. Monthly percent of 1944-45 average honeydew rail unloads from Kansas.

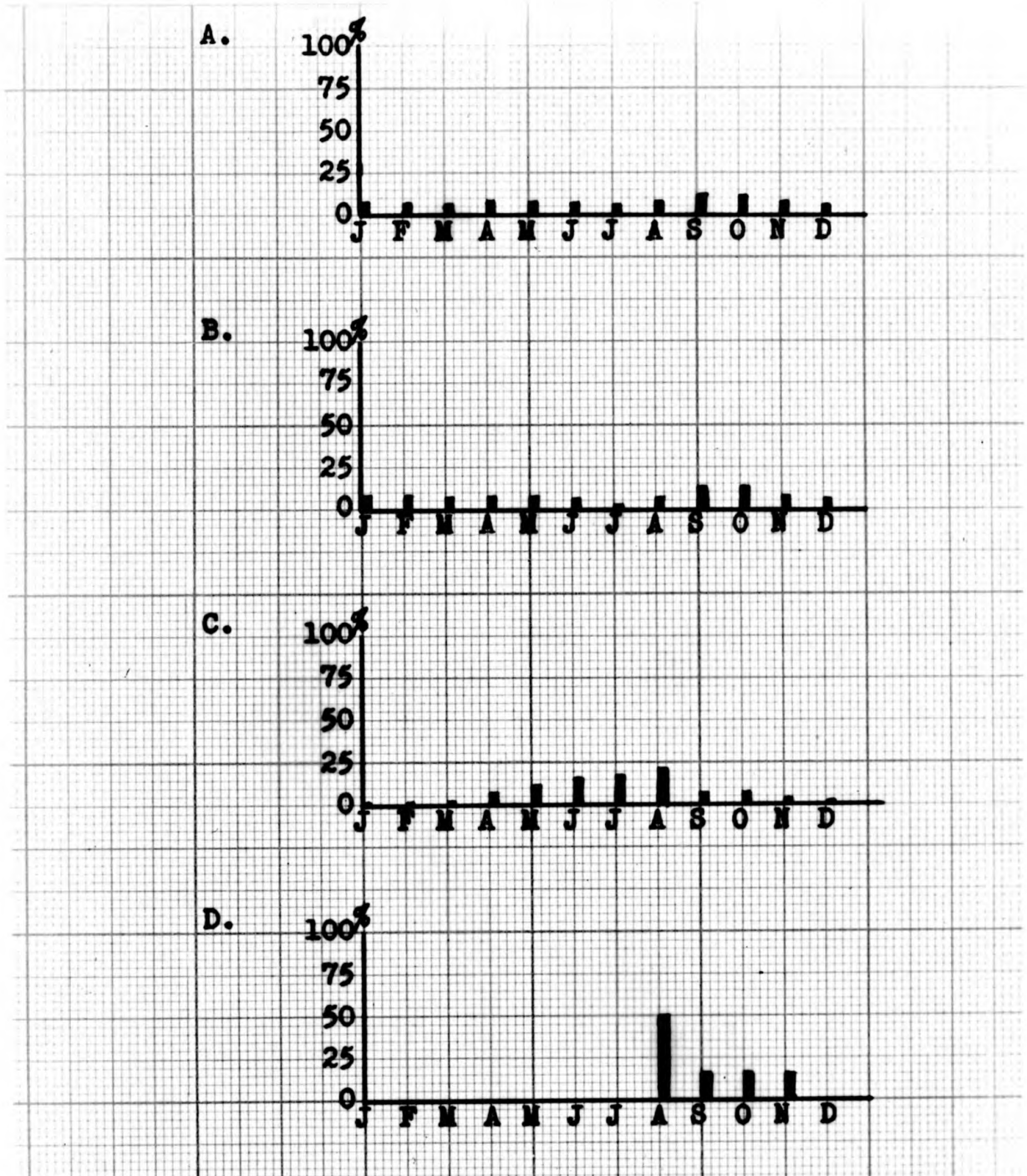

Fig. 19. Onion unloads at Kansas City, Missouri.
A. Monthly percent of 10-year average onion carlo unloads, 1936-45.
B. Monthly percent of 10-year average onion rail unloads, 1936-45.
C. Monthly percent of 10-year average onion truck unloads, 1936-45.
D. Monthly percent of 1944-45 average onion rail unloads from Kansas.

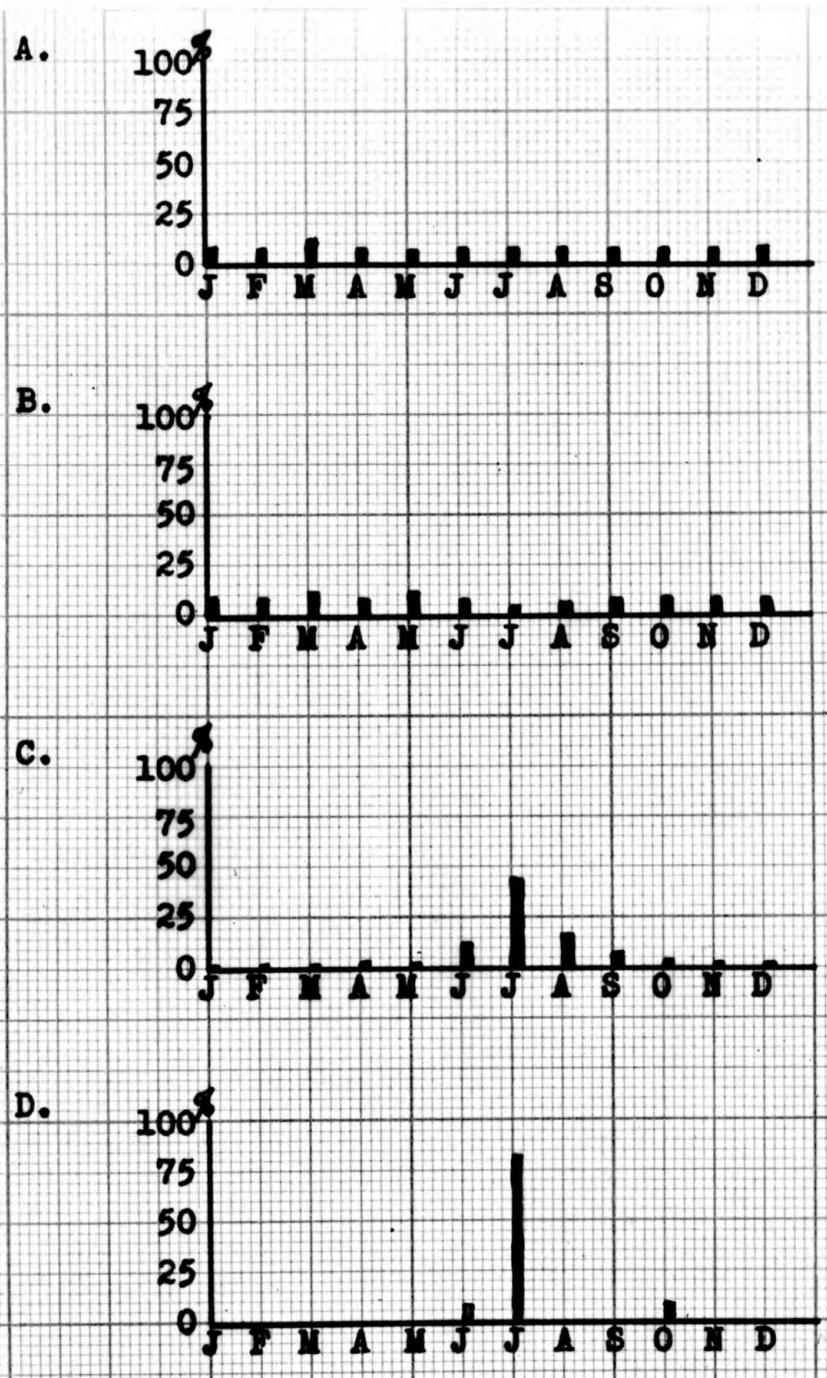

Fig. 20. Potato unloads at Kansas City, Missouri.
A. Monthly percent of 10-year average potato carlot unloads, 1936-45.
B. Monthly percent of 10-year average potato rail unloads, 1936-45.
C. Monthly percent of 10-year average potato truck unloads, 1936-45.
D. Monthly percent of 1944-45 average potato rail unloads from Kansas.

Summary of Seasonality of Shipments at the Four Markets

New York Market. Relatively small numbers of unloads of cantaloups were reported in August. No Kansas shipments were reported in August. Possibly Kansas shipments could be profitably made in August to this market. The largest number of Kansas honeydew shipments came in September, when the number of unloads on the New York market had started to decline. This indicates that marketing at a later date from the present time of marketing might be profitable. It was pointed out earlier that New York was the most important rail outlet for Kansas honeydew melons of the four markets studied. The seasonality study shows also why this is true and indicates that further study probably should be made of the effect of seasonal receipts on the prices at these various markets.

Kansas onions are marketed at New York in the late season which is an advantage as generally more unloads are reported in the early season. However, Kansas onions probably will have considerable competition from areas near New York, where the commodity is transported by truck.

There were no unloads of Kansas potatoes reported at New York for the period 1936 to 1945.

Chicago Market. From the trend of unloads of cantaloups at Chicago, indications are that Chicago is a more favorable outlet than New York. The bulk of Kansas cantaloups were unloaded in September at Chicago, when the numbers of rail and truck unloads

were declining. Any further delay of Kansas marketings would probably improve their price if no reduction in the quality of the crop were incurred.

Kansas honeydews came to the Chicago market at a time when total unloads were decreasing but were still relatively large in numbers. According to the data available, it is not probable that much improvement could be made in the time that Kansas honeydews come to this market.

The trend of the total number of onion unloads at Chicago is not as favorable as the trend of onion unloads on the New York market. Relatively large numbers of onions came to Chicago in the fall season at the time Kansas onions were marketed. If possible, marketing of Kansas onions in August probably would give them a more favorable position in the pattern of monthly unloads at Chicago. Further study would be desirable to show why Chicago was the most important outlet for Kansas onions from 1936-45.

The bulk of Kansas potatoes were unloaded at Chicago in July. From the data available, indications are that little change could be made to improve the time of marketing Kansas potatoes at this market. This is probably one of the important factors in making Chicago the chief outlet for Kansas potatoes from 1936 to 1945.

St. Louis Market. The unload study pointed out earlier in this thesis that St. Louis was the most important rail outlet for Kansas cantaloups in 1944 and 1945. The seasonality of unloads of cantaloups at St. Louis may indicate why this market

was the most important outlet for Kansas cantaloups in 1944 and 1945 (See Fig. 13). The bulk of Kansas cantaloup unloads came to St. Louis in October, at a time when the total number of unloads of cantaloups at this market was small.

The trend of total unloads of honeydew melons at St. Louis was not favorable for Kansas shipments of this vegetable. The largest number of Kansas honeydews came to this market in September and October, when large shipments by rail were coming to this market.

The trend of onion unloads at the St. Louis market was not favorable for Kansas shipments of this vegetable. More total unloads were reported for the late marketing season than for the early marketing season. Figure 15 indicates that shipments of onions made from Kansas in July occupied the most favorable marketing position in the seasonal pattern of total unloads.

Unloads of Kansas potatoes at St. Louis occupied a favorable position in the seasonal pattern at this market. Marketings in the month of August might be desirable as the largest number of truck unloads from other States came in July.

The largest number of Kansas unloads of potatoes came in July at a rather favorable time at St. Louis. However, during July competition was keen from local areas, bringing their potatoes to St. Louis by truck. August marketings might improve the marketing position of Kansas potatoes at this market.

Kansas City, Missouri Market. Further study of Kansas City as an outlet for Kansas cantaloups would be desirable. The

largest number of Kansas cantaloups came to this market in September when the total number of unloads of cantaloups was relatively small.

The pattern of seasonal unloads of honeydews was not favorable for the marketing of Kansas honeydews. Relatively large numbers of rail and truck shipments were reported in September when the bulk of Kansas honeydews were sent to market. August marketing probably would improve the marketing position of Kansas honeydews at this market. The bulk of Kansas onions were marketed at Kansas City, Missouri, in August. The total number of unloads of onions at Kansas City at this time was relatively small but August was also the month in which the largest number of truck shipments of onions came to this market. Early marketings, if possible, might give Kansas onions a more favorable position in the seasonal pattern of onion marketings at Kansas City.

PLANTING AND HARVESTING DATES

The seasonality of unloads at the four markets is to a large extent determined by the dates of planting and harvesting of the four vegetables. These dates may be adjusted to some extent in the various producing areas. The important unloading months at the four markets for Kansas shipments for the period 1944 to 1945 are summarized as follows:

Cantaloups.....August, September, and October.

Honeydew melons....August, September and October.

Onions.....July to December

Potatoes.....June to November

Tables 16 to 23, inclusive, give detailed information on the planting and harvesting dates and production data for the producing areas in the United States for the four commodities. Tables 17, 18, 21 and 22 do not give data for honeydew melons and onions in Kansas since this material was prepared prior to the time Kansas developed commercial areas of production of these two vegetables. These tables (16 to 23) show that Kansas cantaloups compete with mid-summer and late summer crops, with the latter probably more important as competitors. California is the chief rival of Kansas in the production of honeydew melons. Late summer states are probably more important as competing onion producing states. Both late spring and summer potato producing states are serious potato competitors for Kansas.

Table 16. Usual planting and harvesting dates for cantaloups in the United States.[1]

Group and state	Usual dates			
	Planting	Harvesting		
		Begins	Most active	Ends
Spring				
Calif., Imp.	Nov. 1 - Apr. 30	Apr. 1	May and June	July 31
Florida	Feb. 15 - Mar. 15	June 1	June	June 30
Early summer				
Arizona	Feb. 20 - Apr. 10	May 20	June and July	July 31
Georgia	Mar. 1 - Apr. 30	June 1	June and July	Aug. 31
South Carolina	Mar. 10 - Apr. 20	June 15	June and July	July 31
Mid-summer				
California, other	Mar. - June	June 1	July and August	Nov. 30
Washington	Apr. 1 - May 31	July 1	July and August	Sept. 30
New Mexico	Apr. 1 - 20	July 1	July and August	Sept. 30
Texas	Feb. 15 - May 10	May 10	July and August	Sept. 15
Oklahoma	Mar. 25 - Apr. 15	June 25	July and August	Aug. 31
Arkansas	Apr. 1 - May 10	July 1	July and August	Aug. 31
North Carolina	Apr.	July 1	July and August	Aug. 31
Maryland	May 1 - 20	July 15	August	Aug. 31
Delaware	Apr. 25 - May 10	July 20	August	Aug. 31
Indiana	Apr. 15 - June 15	July 10	July and August	Sept. 20
Illinois	Apr. 10 - May 15	July 15	August	Sept. 10
Iowa	Apr. 15 - May 10	July 20	August	Aug. 31
Late summer				
Oregon	May	Aug. 1	September	Oct. 31
Utah	Apr. 15 - May 15	Aug. 1	August and September	Oct. 31
Colorado	Apr. 15 - May 15	Aug. 5	August and September	Oct. 15
Kansas	Apr. 20 - May 31	Aug. 1	August and September	Sept. 30

Table 16 (concl.).

Michigan	May 20 - June 10	Aug. 1	August and September	Sept. 30
Ohio	Apr. 20 - May 31	Aug. 1	August and September	Sept. 20
New Jersey	Apr. 25 - May 31	July 20	August and September	Sept. 30
New York	May 15 - June 15	Aug. 15	August and September	Sept. 30

[1] C. O. Parker and R. Royston, "Usual Dates of Planting and Harvesting Commercial Truck Crops for Fresh Market". U. S. Dept. Agr., Bur. Agr. Econ., Crop Reporting Board. (Mimeo. rpt.) 65 p. July, 1945.

Table 17. Usual planting and harvesting dates for honeydew melons in the United States.[1]

Group and state	Usual dates: Planting	Usual dates: Harvesting: Begins	Usual dates: Harvesting: Most active	Usual dates: Harvesting: Ends
Spring				
California, Imp.	Nov. - Apr.	May 1	June and July	July 31
Summer				
Arizona	Feb. 20 - Apr. 10	June 1	July and August	Nov. 30
California, other	Apr. - June	July 1	August and September	Oct. 31
Colorado	Apr. 15 - May 15	Aug. 1	September	Oct. 31

[1] C. O. Parker and R. Royston, op. cit.

Table 18. Usual planting and harvesting dates for onions in the United States.[1]

Group and state	Usual dates			
	Planting	Harvesting		
		Begins	Most active	Ends
Early spring				
Texas	Oct. - Dec.	Mar. 25	Apr. - May 20	May 31
Late spring				
California	Nov. - Jan.	Apr. 1	May and June	July 31
Arizona	Nov. - Dec.	May 1	May 10 - June 20	June 30
Louisiana	Dec. 15 - Jan. 31	May 1	May 10 - June 10	June 30
Texas	Jan. 15 - Mar. 15	May 1	June	Aug. 31
Georgia	Dec. 15 - Feb. 10	May 1	June	Aug. 31
Early summer				
California	Dec. - Feb.	May 1	June and July	Aug. 31
New Mexico	Oct. 1-15 and Feb. 1-15	June 20	July	Aug. 15
Washington	Feb. 15 - Mar. 15	June 1	July	Aug. 31
Early summer				
Iowa	Apr.	July 1	July	Aug. 15
Oklahoma	Feb. 15 - Mar. 15	June 1	July	Aug. 31
Kentucky	Feb. 25 - Apr. 10	June 1	July	July 31
Virginia	Jan. 25 - Mar. 15	June 1	July	July 31
New Jersey	Mar. 5 - Apr. 20	June 20	July	Sept. 15
Late summer				
Massachusetts	Apr. 1 - May 10	July 1	August	Aug. 31
New York	Mar. 20 - Apr. 15	July 1	August and September	Oct. 31
Pennsylvania	Mar. 15 - May 31	July 1	August and September	Oct. 31
Ohio	Mar. 25 - Apr. 25	July 1	August and September	Oct. 31
Indiana	Mar. 25 - May 15	July 1	August and September	Oct. 31

Table 18 (concl.).

Illinois	Apr.	July 1	August and September	Oct. 31
Michigan	Apr. 10 - May 15	July 1	August and September	Oct. 31
Wisconsin	Apr.	July 1	August and September	Oct. 31
Minnesota	Apr. 15 - 30	July 1	September and October	Oct. 31
Iowa	Apr. 15 - May 10	July 1	August and September	Oct. 31
Colorado	Mar.	July 1	August and September	Oct. 31
Utah	Mar. 15 - Apr. 30	July 1	August and September	Oct. 31
Nevada	Mar. 15 - Apr. 30	July 1	August and September	Oct. 31
California	Feb. - Apr.	July 1	August and September	Oct. 31
Idaho	Mar.	July 1	August and September	Oct. 31
Oregon	Mar. 25 - Apr. 15	July 1	August and September	Oct. 31
Washington	Mar. 15 - Apr. 15	July 1	August and September	Oct. 31
Arizona	May 1 - 31	Sept.1	September and October	Oct. 31

[1]C. O. Parker and R. Royston, op. cit.

Table 19. Usual planting and harvesting dates for commercial early Irish potatoes in the United States.[1]

Group and state	Usual dates			
	Planting	Harvesting		
		Begins	Most active	Ends
Winter				
Texas	Sept. 1 - Oct. 10	Nov. 15	December and January	Feb. 28
Florida	Sept. 20 - Jan. 15	Dec. 20	January and March	Apr. 30
Early spring				
Florida	Dec. 1 - Feb. 10	Mar. 20	April and May	May 31
Texas L. Valley	Dec. 15 - Feb. 28	Mar. 20	April and May	May 20
Late spring				
California	Jan. - Apr.	Mar. 15	Apr. 20 - July 15	Aug. 31
Louisiana	Jan. 15 - Feb. 28	Apr. 20	May	June 15
Mississippi	Feb. 10 - Mar. 10	May 1	May 10 - June 20	June 30
Alabama	Feb. 1 - Mar. 15	Apr. 20	May and June	July 15
Georgia	Jan. 20 - Feb. 28	May 1	May 15 - June 15	June 30
South Carolina	Jan. 15 - Mar. 10	May 1	May and June	June 30
Texas, other	Feb. 1 - Mar. 15	May 10	May 20 - June 20	July 15
Oklahoma	Feb. 15 - Mar. 15	May 25	June	June 25
Arkansas	Feb. 15 - Mar. 31	May 25	June	July 15
Tennessee	Mar. 1 - 20	June 1	June and July	Aug. 31
North Carolina	Feb. 1 - Mar. 10	May 15	June	July 20
Summer				
Virginia	Feb. 10 - Mar. 31	June 1	June and July	July 31
Maryland	Mar. 10- 31	June 25	July	Aug. 5
Kentucky	Mar. 1 - 15	June 25	July	Aug. 5
Missouri	Mar. 1 - 15	June 25	July	Aug. 5
Kansas	Mar. 5 - Apr. 10	June 25	July	Aug. 5

Table 19 (concl.).

Nebraska	Mar. 25 - Apr. 10	July 10	July 20 - Aug. 20	Sept. 15
Texas Panhandle	Mar. 15 - July 5	July 1	August	Sept. 30
Georgia, north	Mar. 1 - Apr. 10	July 1	July and August	Sept. 30
New Jersey	Apr. 1 - Apr. 25	July 5	July 15 - Aug. 31	Sept. 15

[1]C. O. Parker and R. Royston, op. cit.

Table 20. Acreage, yield, production and principal areas of production of cantaloups in the United States.[1]

Group and state	1934-43 average: Acreage	Yield: crates[2]	Production: (000 crts)	Principal areas of production
Spring				
California, Imp.	17,780	137	2,415	Imperial Valley
Florida	410	66	28	Hamilton, Marion counties
Early summer				
Arizona	9,500	131	1,219	Salt River Valley, Yuma district
Georgia	6,270	50	297	Worth, Mitchell counties
South Carolina	3,630	58	206	Barnwell, Bamberg counties
Mid-summer				
California	8,722	200	1,735	Stanislaus, Kern, Tulare, Los Angeles, San Joaquin counties
Washington	1,635	188	307	Yakima, Spokane, Benton, Franklin, Grant counties
New Mexico	983	116	114	Dona Ana county
Texas	5,125	63	315	Webb, Dimmit, Zavala, Atascosa, Frio, Bastrop, Reeves, Hard, Parker, Wise counties
Oklahoma	1,500	67	104	Okfuskee, Grady, Pottawatomie, Muskogee, Bryan, Jefferson counties
Arkansas	1,915	57	110	Southwest area (Hempstead, Howard and Sevier) Crawford-Franklin county area, Pulaski county
North Carolina	5,010	72	368	Scotland, Robeson, Hoke, Chowan, Currituck, Warren, Vance, Sampson, Duplin counties
Maryland	6,590	104	681	Wicomico, Dorchester, Anne Arundel, Caroline counties
Delaware	3,390	112	378	Sussex, Kent counties

Table 20 (concl.).

Indiana	6,670	80	521	Knox, Gibson, Jackson, Sullivan, LaGrange, Elkhart, DeKalb, Bartholomew, Daviess, Posey counties
Illinois	1,535	72	112	Jackson, Union, White, Cook, Gallatin, Cass, Mason, Tazewell, Carroll, Henderson, Madison, Clark, Lawrence counties
Iowa	764	85	64	Muscatine county
Late summer				
Oregon	729	160	117	Yamhill, Douglas, Wasco, Marion, Lane counties
Utah	769	119	89	Emery, Box Elder, Grand counties
Colorado	4,084	118	484	Arkansas Valley, Weld, Adams counties and Grand Junction area
Kansas	780	77	55	Kansas River (Kaw) Valley
Michigan	4,640	110	517	Berrien, Monroe, Bay, Van Buren counties
Ohio	3,193	88	286	Lucas, Pickaway, Montgomery, Sandusky counties
New Jersey	3,290	97	330	Swedesboro, Burlington, Hammonton districts
New York	2,195	80	174	Erie, Niagara, Monroe, Albany, Rensselaer, Washington counties

[1]C. O. Parker and R. Royston, op. cit.

[2]Crate approximately 60 pounds.

Table 21. Acreage, yield, production and principal areas of production of honeydew melons in the United States.[1]

Group and state	1934-43 average			Principal areas of production
	Acreage	Yield crates[2]	Production (000 crts)	
Spring				
California, Imp.	4,310	266	1,167	Imperial Valley
Summer				
Arizona	1,095	275	316	Yuma and Phoenix districts
California, other	3,571	279	991	Stanislaus, Tulare, Riverside, Fresno, Yolo counties
Colorado	2,523	161	437	Otero, Pueblo, Crowley counties

[1] C. O. Parker and R. Royston, op. cit.

[2] Crate approximately 35 pounds.

Table 22. Acreage, yield, production and principal areas of production of onions in the United States.[1]

Group and state	1934-43 average: Acreage	Yield sacks[2]	Production (000 sacks)	Principal areas of production
Early spring				
Texas	45,440	83	3,530	Laredo, Raymondville, Corpus Christi districts; Dimmit, Zavala, Maverick, Frio, Wilson, Karnes counties
Late spring				
California	1,650	324	503	Kern, Los Angeles, Riverside counties
Arizona	1,350[3]	300	468	Salt River Valley
Louisiana	1,570	98	154	Lafourche, Pointe Coupee, West Feliciana parishes
Texas	15,870	88	1,376	Collin, Dallas, Ellis, Williamson, Hunt, Navarro counties
Georgia	1,200[3]	141	183	Toombs, Tattnall, Randolph, Calhoun, Terrell counties
Early summer				
California	1,920	415	742	San Joaquin, Stanislaus, Merced cos.
New Mexico	325[3]	386	122	Dona Ana county
Washington	560	497	282	Walla Walla and Benton counties
Iowa	600	299	168	Scott county
Oklahoma	1,250	104	136	Hughes, McIntosh, Pittsburg counties
Kentucky	210	240	46	Jefferson county
Virginia	720	158	109	Eastern Shore
New Jersey	2,920	244	714	Cedarville, Great Meadows, Mullica Hill districts
Late summer				
Massachusetts	2,470	457	1,109	Connecticut Valley (Hampshire, Franklin counties)
New York	13,076	470	6,128	Orange, Madison, Oneida, Onondaga, Oswego, Cayuga, Wayne, Steuben cos.

Table 22 (concl.)

Pennsylvania	367	334	123	York, Schuylkill, Luzerne, Tioga, Bucks counties
Ohio	2,151	314	616	Hardin, Wayne, Stark, Lucas, Hancock, Seneca counties
Indiana	3,110	346	1,016	Kosciusko, Starke, Noble, Whitley, Steuben, Jasper, DeKalb, Allen, St. Joseph, LaGrange, LaPorte counties
Illinois	2,360	247	581	Cook, Du Page, Lake, Will, Kankakee counties
Michigan	9,700	363	3,482	Allegan, Newaygo, Calhoun, Ingham, Jackson, Ionia, Barry, Van Buren, Ottawa, Eaton, Kent, Lapeer, Washtenaw, Lenawee counties
Wisconsin	1,303	351	457	Kenosha and Racine counties
Minnesota	3,238	375	1,254	Freeborn, Clay, Dakota, Steele, Hennepin, Ramsey, Faribault, Polk, Mille Lacs counties
Iowa	647	393	247	Clear Lake and Crystal Lake district
Colorado	5,864	455	2,778	Arkansas Valley, Montrose, Delta, Weld, Adams counties
Utah	1,135	495	559	Davis, Salt Lake, Box Elder, Cache, Weber, Morgan, Sevier counties
Nevada	171	449	78	Washoe and Lyon counties
California	4,325	381	1,662	Monterey, Riverside, San Joaquin, Los Angeles, Santa Barbara cos.
Idaho	2,840	635	1,789	Canyon, Owyhee, Twin Falls, Bingham, Jerome, Payette counties
Oregon	2,855	507	1,456	Marion, Washington, Malheur, Jackson, Klamath, Wasco, Lane, Linn counties
Washington	1,254	511	633	Yakima, Clark, King counties
Arizona	500[3]	160	80	Safford district (Graham county)

[1] C. O. Parker and R. Royston, op. cit.
[2] Sack approximately 50 pounds.
[3] Short-time average.

Table 23. Acreage, yield, production and principal areas of production of commercial early Irish potatoes in the United States.[1]

Group and state	1934-43 average: Acreage	Yield bus.[2]	Production (000 bus.)	Principal areas of production
Winter				
Texas	2,430	48	109	Lower Rio Grande Valley, Colorado, Ft. Bend, Wharton counties
Florida	8,520	137	1,162	Dade, Palm Beach, Lee counties
Early spring				
Florida	18,100	126	2,259	Hastings and LaCrosse sections, Escambia county, Everglades section
Texas, L. Valley	7,370	92	671	Lower Rio Grande Valley
Late spring				
California	30,700	299	9,314	Kern, Riverside, Los Angeles, San Bernardino counties
Louisiana	24,750	74	1,835	Lafourche, Terrebonne, Rapides, Pointe Coupee, West Feliciana, Ascension, E. Baton Rouge, E. Feliciana, Iberville, St. James, St. John, St. Landry, Assumption, Washington, W. Baton Rouge, Lafayette parishes
Mississippi	3,450	91	300	Marion, Jones, Walthall, Forrest, Lawrence, Pearl River, Jefferson Davis, Pike, Lamar, Stone counties
Alabama	20,700	129	2,616	Baldwin, Escambia, Mobile, Cullman counties
Georgia	2,770	118	308	Effingham, Chatham, Mitchell,
South Carolina	13,530	144	1,932	Charleston, Beaufort, burg counties
Texas, other	9,990	59	584	Bowie, Colorado, Wharton, Camp Morris, Cass, Titus counties; San Antonio district

Table 23 (concl.).

Oklahoma	6,360	95	589	Muskogee area
Arkansas	5,540	87	474	Arkansas Valley and White county (includes Crawford, Sebastian, Franklin, Logan, Johnson, Yell, Pope, Van Buren, Conway, Perry, Cleburne, Faulkner, White and Prairie counties) Phillips county, Monticello-Warren area (include Drew, Ashley, Bradley, Cleveland, Lincoln, Grant, and Jefferson)
Tennessee	3,950	107	425	Franklin, Maury counties
North Carolina	35,840	138	4,987	Beaufort County, Elizabeth City section, Pamlico County, Mt. Olive section, Tyrrel, Carteret, and Pitt counties
Summer				
Virginia	47,020	145	6,881	Eastern Shore and Norfolk areas, James City county
Maryland	6,080	140	864	Worcester, Somerset, Wicomico counties
Kentucky	4,940	112	523	Jefferson county
Missouri	5,540	146	786	Ray, Jackson, Clay counties
Kansas	9,900	133	1,272	Kaw Valley (Kansas River), Scott co.
Nebraska	3,770	230	882	Buffalo, Dawson, Hall, Garfield, Kearney, Phelps, Merrick, Valley Dakota, Redwillow counties
Texas, Panhandle	6,400[3]	205	1,299	Deaf Smith, Hale, Bailey counties
Georgia, north	1,470[3]	112	165	Fannin, Gilmer, Habersham, Lumpkin, Rabun, Towns, Union, White counties
New Jersey	47,190	180	8,496	Freehold, Hightstown, Salem districts

[1]C. O. Parker and R. Royston, op. cit.
[2]Bushel approximately 60 pounds.
[3]Short-time average.

ORIGIN OF UNLOADS AT CHICAGO

Since Chicago was the main outlet for the four commodities from Kansas, a study of the origin of receipts at Chicago for a ten-year period was made. These data were collected to determine which areas compete with Kansas at the Chicago vegetable market. The results are summarized in Table 24 and ranked in order of carlot unloads in Table 25. Kansas ranked sixteenth in the number of unloads of cantaloups, fourth in honeydew unloads, eighteenth in onion unloads and twenty-first in potato unloads at the Chicago market.

The above rankings mean more when explained on a percentage basis of total unloads for the past ten years at Chicago originating from Kansas. The results of such a study are summarized in percent as follows:

Cantaloups	Honeydew melons	Onions	Potatoes
.10	1.22	.17	.70

Figures 21 to 24 show the percent of all unloads for ten years at Chicago by State of origin. There are other important cantaloup producing areas closer to Chicago than Kansas. The same picture is true for the production of onions and potatoes. However, a different situation is apparent for honeydew production according to Fig. 22. Kansas is the nearest important honeydew producing area to the Eastern markets. This advantage must be weighed by such factors as slightly lower freight

rates for longer hauls from other areas, the time of marketing, and production costs. The location advantage that Kansas has in the production of honeydew melons should be considered in the future as one of the factors to determine if more stress should be placed on the production of honeydews in this State or whether more attention should be given to certain other vegetables.

Table 24. Origin of unloads at Chicago, 10-year totals, and percent of 10-year total unloads of cantaloups (c), honeydew melons (hm), onions (o), and potatoes (p), 1936-45.

State of origin	Cantaloups: 10-year total unloads	Cantaloups: % of 10-year total unloads c	Honeydews: 10-year total unloads	Honeydews: % of 10-year total unloads hm	Onions: 10-year total unloads	Onions: % of 10-year total unloads o	Potatoes: 10-year total unloads	Potatoes: % of 10-year total unloads p
Alabama	1	-	0	0	0	0	6,953	4.24
Arizona	3,638	21.22	481	16.72	238	0.88	418	0.26
Arkansas	22	.13	0	0	1	-	1,288	0.79
California	8,601	50.17	1,719	59.75	1,717	6.33	13,477	8.23
Colorado	1,351	7.88	616	21.41	3,576	13.19	14,204	8.67
Delaware	5	0.03	0	0	0	0	17	0.01
Florida	0	0	0	0	2	-	3,266	1.99
Georgia	22	0.13	0	0	19	0.07	3	-
Idaho	4	0.03	0	0	2,080	7.67	44,437	27.12
Illinois	365	2.13	0	0	3,544	13.07	139	0.08
Indiana	1,175	6.86	0	0	779	2.87	925	0.56
Iowa	39	0.23	0	0	1,137	4.19	237	0.14
Kansas	17	0.10	35	1.22	47	0.17	1,149	0.70
Kentucky	4	0.02	0	0	1	-	3	-
Louisiana	0	0	0	0	16	0.06	5,409	3.30
Maine	0	0	0	0	0	0	1,382	0.84
Maryland	6	0.04	0	0	0	0	141	0.09
Massachusetts	0	0	0	0	1	-	2	-
Michigan	658	3.84	0	0	2,806	10.34	4,037	2.46
Minnesota	0	0	0	0	2,296	8.46	8,481	5.18

Table 24 (cont.)

Mississippi	0	0	0	0	0	0	1,137	0.69
Missouri	523	3.05	0	0	29	0.11	3,704	2.26
Montana	118	0.69	0	0	0	0	282	0.17
Nebraska	0	0	0	0	24	0.09	10,617	6.48
Nevada	3	0.02	0	0	15	0.06	0	0
New Jersey	0	0	0	0	4	0.01	858	0.52
New Mexico	183	1.07	0	0	54	0.20	0	0
New York	3	0.02	0	0	59	0.22	207	0.13
North Carolina	1	-	0	0	2	-	1,421	0.87
North Dakota	0	0	0	0	20	0.07	16,846	10.28
Ohio	5	0.03	0	0	16	0.06	54	0.03
Oklahoma	17	0.10	0	0	67	0.25	896	0.55
Oregon	5	0.03	0	0	604	2.23	2,400	1.47
Pennsylvania	0	0	0	0	0	0	191	0.12
Rhode Island	0	0	0	0	0	0	0	0
South Carolina	2	-	0	0	0	0	87	0.05
South Dakota	0	0	0	0	3	0.01	629	0.38
Tennessee	0	0	0	0	4	0.01	75	0.05
Texas	128	0.75	4	0.14	5,804	21.40	3,108	1.90
Utah	138	0.81	0	0	284	1.05	147	0.09
Virginia	0	0	0	0	0	0	1,300	0.79
Washington	9	0.05	0	0	585	2.16	2,240	1.37
West Virginia	0	0	0	0	0	0	1	-
Wisconsin	16	0.09	0	0	1,254	4.63	9,963	6.08
Wyoming	0	0	0	0	14	0.05	1,565	0.95

Table 24 (concl.).

Canada	1	-	0	0	0	0	142	0.09
Chile	0	0	16	0.55	0	0	0	0
Cuba	0	0	0	0	0	0	1	-
Hawaii	0	0	0	0	0	0	1	-
Mexico	52	0.30	0	0	1	-	0	0
Unknown	31	0.18	6	0.21	24	0.09	41	0.02
Totals	17,143	100.0	2,877	100.0	27,127	100.0	163,881	100.0

- indicates less than .01 percent.

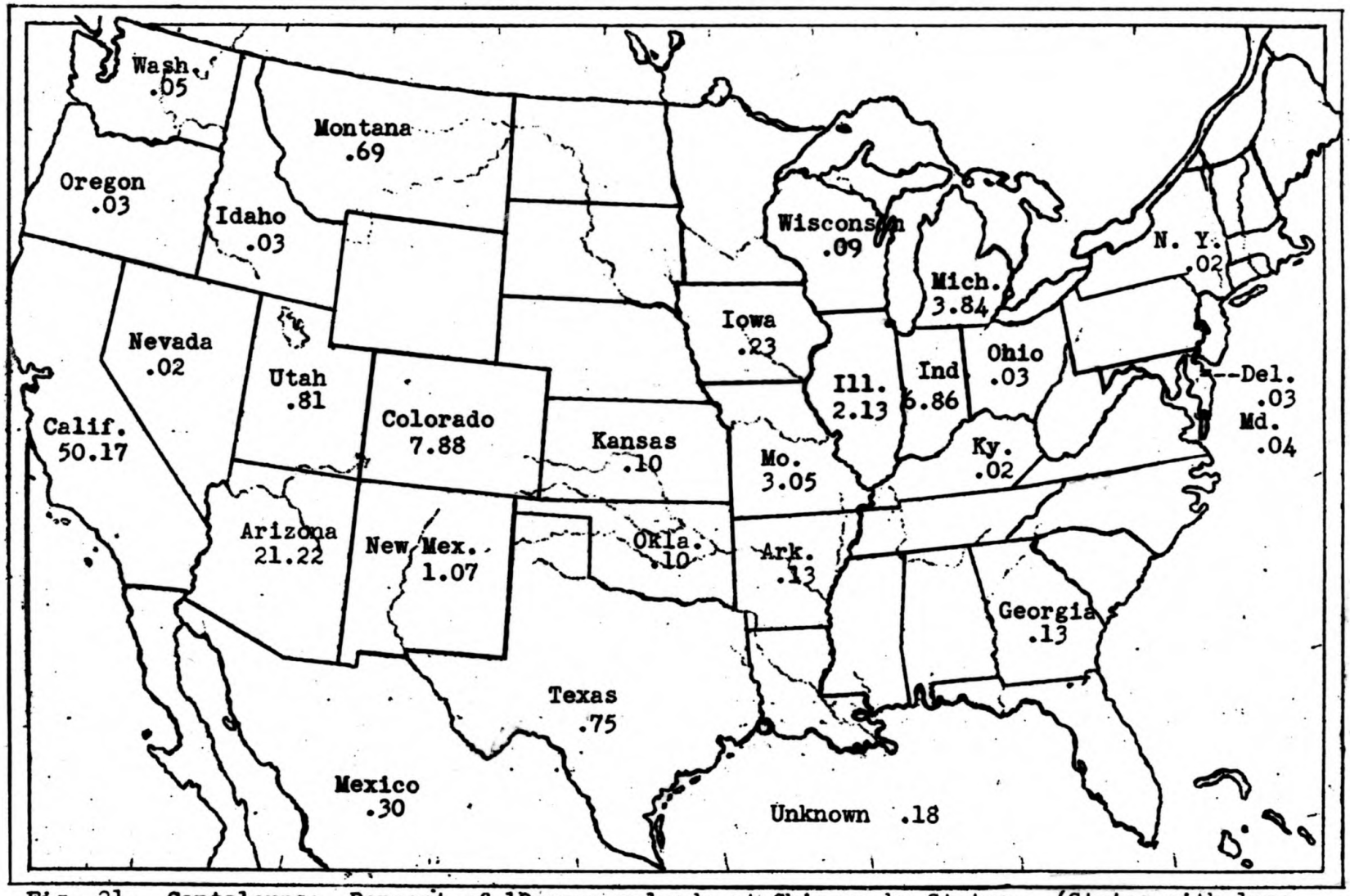

Fig. 21. Cantaloups: Percent of 10-year unloads at Chicago by States.- (States with less than .01% of 10-year total unloads not shown.)

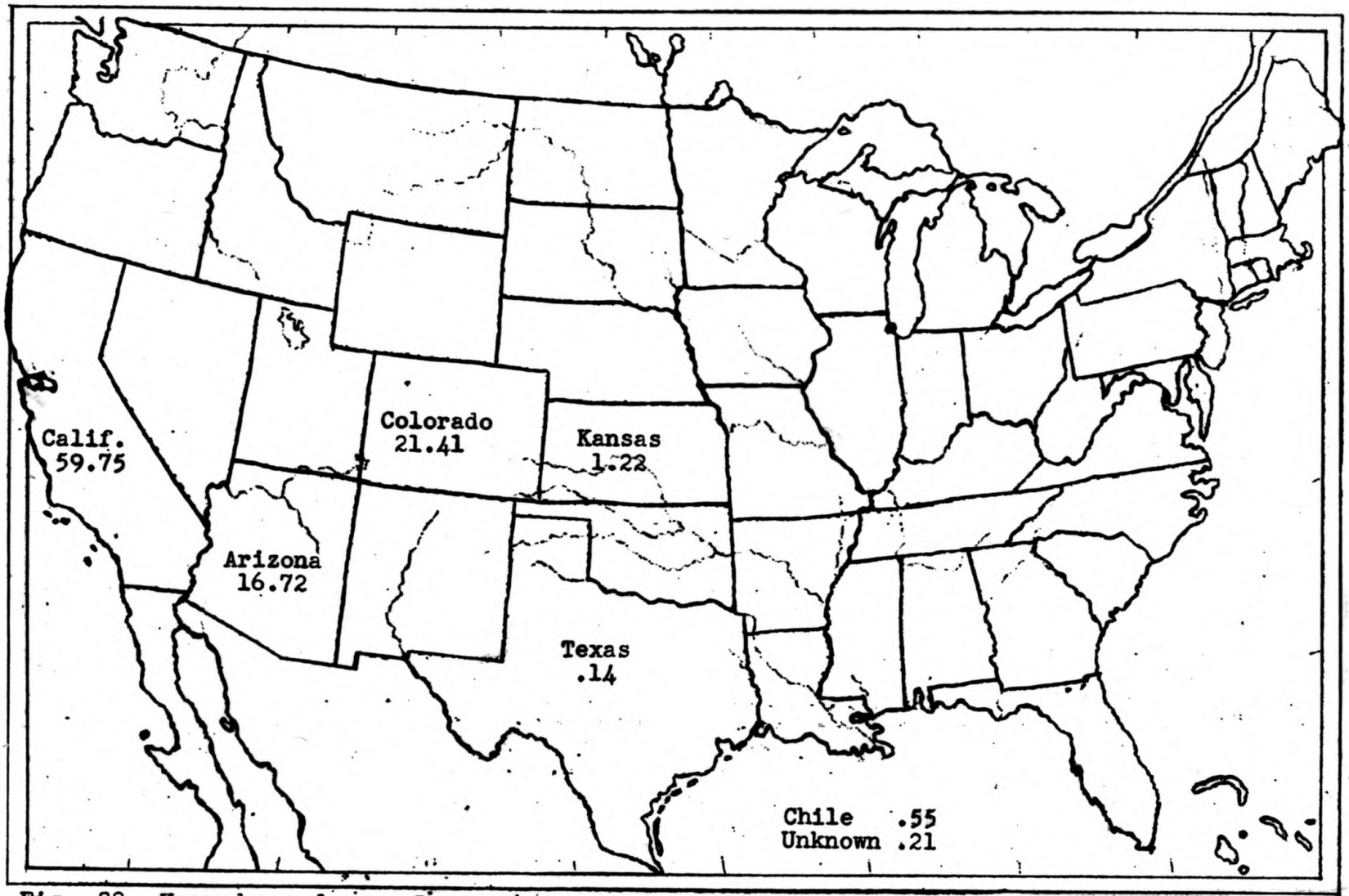

Fig. 22. Honeydew melons: Percent of 10-year unloads at Chicago by States. (States with less than .01% of 10-year total unloads not shown.

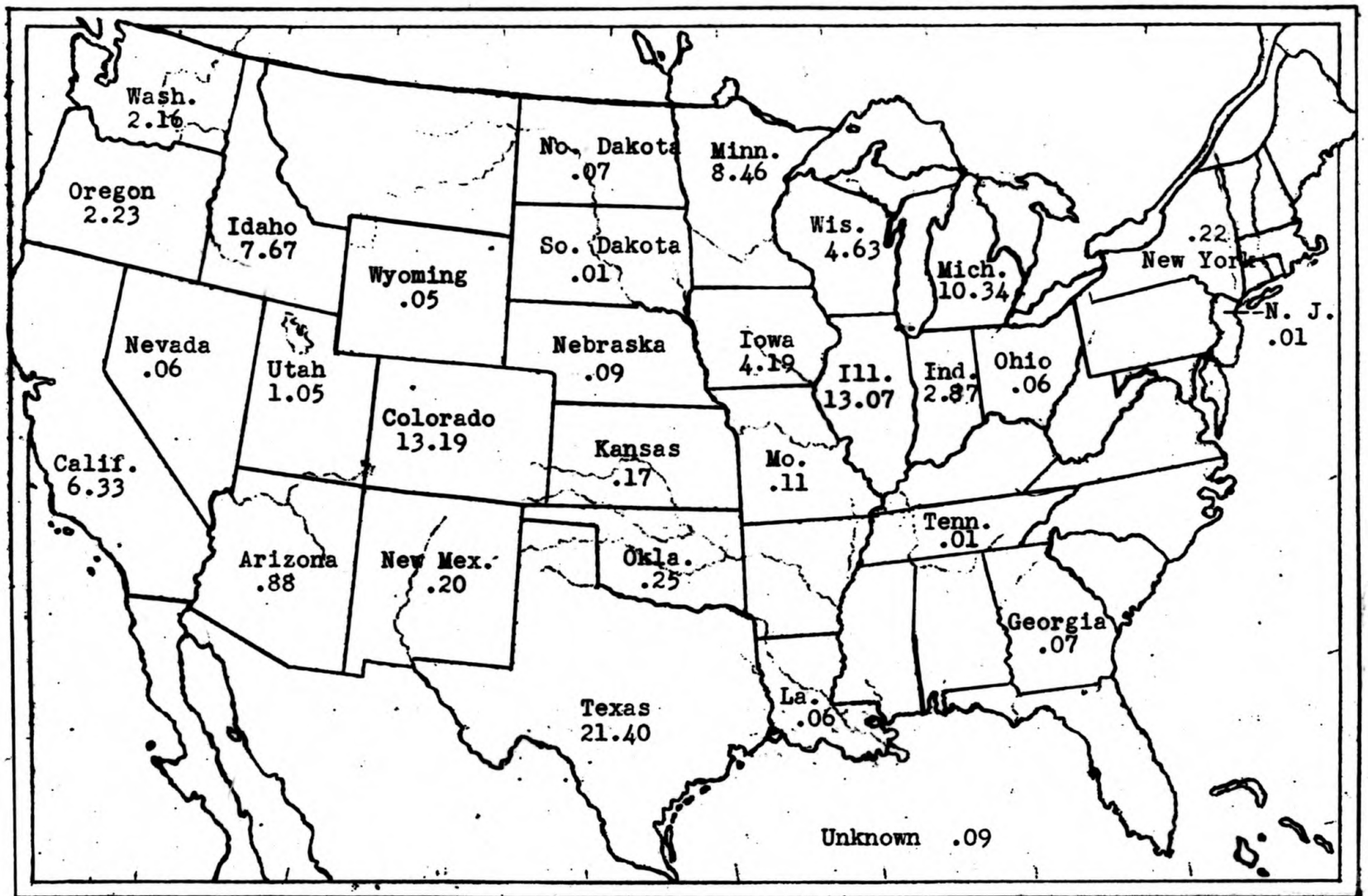

Fig. 23. Onions: Percent of 10-year unloads at Chicago by States. (States with less than .01% of 10-year total unloads not shown.)

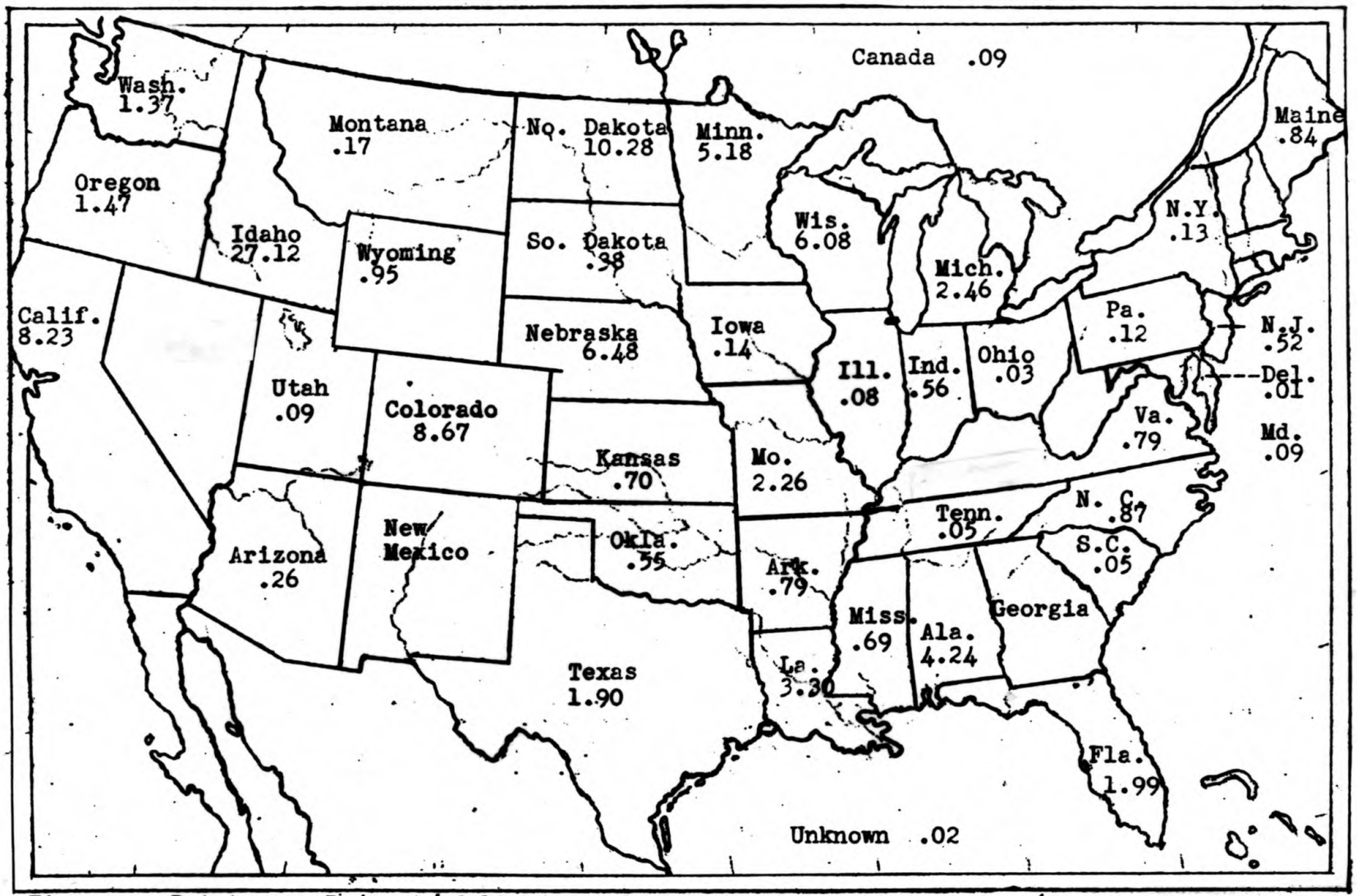

Fig. 24. Potatoes: Percent of 10-year unloads at Chicago by States. (States with less than .01% of 10-year total unloads not shown.)

Table 25. Rank of States in number of unloads at Chicago, 1936-45.

State of origin	Rank			
	Cantaloups	Honeydews	Onions	Potatoes
Alabama	24	-	-	8
Arizona	2	3	14	27
Arkansas	15	-	29	20
California	1	1	7	4
Colorado	3	2	2	3
Delaware	20	-	-	40
Florida	-	-	28	12
Georgia	15	-	22	41
Idaho	21	-	6	1
Illinois	7	-	3	35
Indiana	4	-	10	23
Iowa	13	-	9	29
Kansas	16	4	18	21
Kentucky	21	-	29	41
Louisiana	-	-	23	9
Maine	-	-	-	18
Maryland	19	-	-	34
Massachusetts	-	-	29	42
Michigan	5	-	4	10
Minnesota	-	-	5	7
Mississippi	-	-	-	22
Missouri	6	-	19	11
Montana	11	-	-	28
Nebraska	-	-	20	5
Nevada	22	-	24	-
New Jersey	-	-	26	25
New Mexico	8	-	17	-
New York	22	-	16	30
North Carolina	24	-	28	17
North Dakota	-	-	21	2
Ohio	20	-	23	38
Oklahoma	16	-	15	24
Oregon	20	-	11	14
Pennsylvania	-	-	-	31

Table 25 (concl.).

State of origin	Rank			
	Cantaloups	Honeydews	Onions	Potatoes
South Carolina	23	-	-	36
South Dakota	-	-	27	26
Tennessee	-	-	26	37
Texas	10	7	1	13
Utah	9	-	13	32
Virginia	-	-	-	19
Washington	18	-	12	15
West Virginia	-	-	-	43
Wisconsin	17	-	8	6
Wyoming	-	-	25	16
Canada	24	-	-	33
Chile	-	5	-	-
Cuba	-	-	-	43
Hawaii	-	-	-	43
Mexico	12	-	29	-
Unknown	14	6	20	39

METHODS OF SHIPMENT

The relative importance of the method of shipment by rail, boat or truck was determined by calculating the percent of each commodity unloaded at each market by the various methods of shipment, 1936-45, as follows:

Market	Cantaloups		Honeydews		Onions		Potatoes	
	rail	truck	rail	truck	rail	truck	rail	truck
New York*	66.46	33.54	99.98	0.02	64.47	35.53	55.21	44.79
Chicago	83.36	16.64	100.0	0	78.96	21.04	99.10	0.90
St. Louis	56.87	43.13	99.65	0.35	90.29	9.71	90.92	9.08
Kansas City	52.90	47.10	99.74	0.26	85.43	14.57	91.25	8.75

*Rail and boat combined.

One noticeable fact is that the length of haul largely determines the type of carrier used. In the case of honeydew melons which are produced at quite a distance from the four markets, rail and boat were the most important means of transportation.

Data on rail shipments from Kansas at these four markets were obtained but no comparison could be made of truck unloads due to lack of data from some of the markets. The rail unloads from Kansas for 1936-45 are as follows:

Market	Cantaloups	Honeydews	Onions	Potatoes
New York	5	97	25	-
Chicago	17	35	31	113
St. Louis	20	12	8	17
Kansas City	10	16	6	26

The method of transportation available and the distance to market are important factors in the marketing of perishable products. The study on methods of shipping to the various markets has shown the relative importance of the different methods of transportation. The following extract[4] shows the results of some recent surveys on this problem:

> During the 10 years 1930-39, the perishable traffic, exclusive of tropical fruits, accounted for 13 percent of all agricultural tonnage originated, and 42 percent of the corresponding freight revenues. The disparity between the two percentages may be ascribed principally to the comparatively great distances over which perishable commodities are transported to market, inasmuch as long hauls, speaking generally, yield greater freight revenues than do short hauls.
>
> Populous industrial centers of northeastern United States afford the outstanding markets for fresh fruits and vegetables. The area north of the Ohio and Potomac Rivers, and east of the Mississippi River, embraces a population somewhat greater than half the total population of the nation. In 1930, cities in this area for which carlot unloads were reported received 47.7 percent of United States carlot shipments of 16 important fruits and vegetables comprising about 85 percent of all rail and boat carlot shipments in 1930 and 1931. Since all

[4] C. C. Matlock, "Index Numbers of Railroad Freight Rates on Perishable Agricultural Shipments, United States, 1913-38". U. S. Dept. Agr., Bur. Agr. Econ. (Mimeo. rpt.) 64 p. March, 1941.

reporting cities accounted for unloads amounting only to 67.1 percent of total carlot shipments of these commodities the northeastern region, including the smaller cities and rural communities for which reports of unloads are not available, probably absorbed more than half of the total United States rail and boat shipments.[5] The same statement would be true for any average year. If the 33 percent of 1930 carlot shipments not reported as unloads at the 69 markets were assumed to be distributed geographically in proportion to the distribution of the reported unloads, the inference would be that the northeastern area described included within its boundaries the destinations of roughly 70 percent of all rail and boat shipments. This figure is probably too high, since the disposition of shipments for export, the diversion of shipments to local manufacturing plants, and the lack of proportionality between the population of cities for which unloads are reported in an area and the total population of that area, undermine the validity of the assumption.

Because of the comparatively great distances over which the bulk of perishable shipments must be carried to find an adequate market, the average haul per ton of perishable shipments is naturally large in comparison with the average haul per ton of all railroad traffic. A study made in 1932 disclosed that the average haul of fruits and vegetables shipped by rail in that year was in excess of 1,400 miles.[6] Some shipments, such as those composing the California deciduous fruit traffic, obviously are transported even greater distances to market. Apparently little change occurred in the average length of haul between 1921 and 1932. A Congressional commission of inquiry studied 9,476 representative cars received at primary markets during the 1920-21 season, and found an average haul of about 1,400 miles. A rough division was made between long- and short-haul traffic for purposes of the investigation, and an average length of haul per car was computed for each. The long-haul traffic comprised 56 percent of the total number of cars covered in the investigation, with an average haul of 2,282 miles. The short-haul traffic, representing 44 percent of the traffic studied, moved an

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[5] J. W. Park, "Market Distribution of Car-lot Shipments of Fruits and Vegetables in the United States". U. S. Dept. Agr., Bureau of Agr. Econ. Tech. Bul. No. 445. 1934.

[6] Report of the Federal Coordinator of Transportation, Freight Traffic, Washington, D. C. 1934.

average of 417 miles per car.[7]

> It is interesting that carlots of 19 fruits and vegetables unloaded in New York City in 1930 were originated at a weighted average distance of 1,436 miles from market, a figure approximately equal to the average haul for all United States shipments of these commodities to domestic destinations.[8]

> Little doubt exists that the average haul of perishables has increased perceptibly during the last 10 years as a result of the influence of recent motortruck competition. The motortrucks have made their heaviest incursions into railroad short-haul traffic, for the transport of which they are better suited than for the movement of long-distance shipments. The long-haul railroad traffic has suffered comparatively minor diminution from truck competition and the natural result is an increase in the average haul of railroad traffic taken as a whole. This is true of most classes and kinds of freight; its significance is not limited to perishables.

RELATION OF THE FOUR-MARKET STUDY TO THE WESTERN KANSAS PRODUCING AREA

The study of the carlot shipments from Kansas, the total unloads at the four markets, the seasonality of shipments, planting and harvesting dates, and the origin of shipments study have revealed several important facts. The first of these is that a marked change has occurred in vegetable production in Kansas since 1944. Potato production has continued to decline while the production of cantaloups, honeydew melons, and onions

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[7] Report of the Joint Commission of Agricultural Inquiry, Part III, Transportation, Washington, D. C. 1922.

[8] J. W. Park, "Market Distribution of Car-lot Shipments of Fruits and Vegetables in the United States". U. S. Dept. Agr., Bur. of Agr. Econ. Tech. Bul. No. 445. 1934.

has assumed a commercial basis.

Secondly, Kansas is the nearest producing region of honeydew melons to the New York City vegetable market, which is the leading market for that vegetable.

Associated with the above advantage is the fact that there is a definite tendency for long hauls to be made by rail. All of the other competing areas in honeydew melon production are located farther from the Eastern markets than Kansas, giving Kansas the advantage of being able to use truck transportation, if necessary, to some of the markets.

Thirdly, Kansas has fewer competitors in the market of honeydew melons than for the other three vegetables. Another fact pointed out is that much more study is desirable on the effect of seasonality of unloads at the difference in price received for Kansas vegetables. The possibility exists that a method of cold storage processing may be developed for cantaloups and honeydews which may greatly affect the seasonal pattern of unloads at the various markets. This may cause a change in the relative importance of certain markets as market outlets for these vegetables. In turn, this may reduce the advantage of seasonal production that certain areas may now possess.

Conclusive data are not available on the future of the Western Kansas region as this area has been producing on a commercial scale only since 1944. A new factor that may seriously affect certain producing regions in the future is the

development of air transportation for vegetables. It seems, however, at this time that discovery of cold storage processing methods for cantaloups and honeydews would disturb the marketing process more than changing the method of transportation for these vegetables.

PRICE DATA

Average prices received by farmers in Kansas and the United States are shown in Tables 26 and 27. Figure 25 shows the trend of prices for all commercial truck crops for fresh market shipment. While the trend for the four commodities is not exactly the same as for the entire industry, it will follow somewhat the same trend with the exception possibly of potatoes.

A study to show the relative importance of production and non-agricultural employees' compensation on the price received by producers is shown in Fig. 25.

Table 26. Prices received by Kansas farmers.

Year	Cantaloups[1] (per crate)	Honeydews[2] (per crate)	Onions[2] (per 100#)	Potatoes[1] (per bushel)
1936	$0.80			$1.25
1937	0.90			0.55
1938	0.75			0.35
1939	0.85			0.55
1940	0.75			0.47
1941	1.00			0.45
1942	1.60			0.95
1943	2.00			1.20
1944	2.60			1.50
1945	3.00			1.50

[1]Data supplied by H. L. Collins, State Agricultural Statistician, U. S. Dept. Agr., Topeka, Kansas.

[2]Data not available.

Table 27. Prices received by farmers in the United States.

Year	Cantaloups[1] (per crate)	Honeydews[2] (per crate)	Onions[2] (per 100#)	Potatoes[1] (per bushel)
1936	$1.02	$0.60	$0.85	$1.14
1937	1.14	0.60	1.32	1.53
1938	1.03	0.64	1.11	0.56
1939	1.00	0.64	0.88	0.70
1940	1.06	0.93	1.38	0.54
1941	1.23	0.90	2.26	0.81
1942	2.07	1.52	1.99	1.17
1943	3.73	2.63	3.23	1.31
1944	2.62	1.80	1.17	1.49
1945	-[3]	1.84	1.60	1.39

[1]Agricultural Statistics (Yearbook). U. S. Dept. Agr. 604 p. 1945.

[2]Data supplied by H. L. Collins, State Agricultural Statistician, U. S. Dept. Agr., Topeka, Kansas.

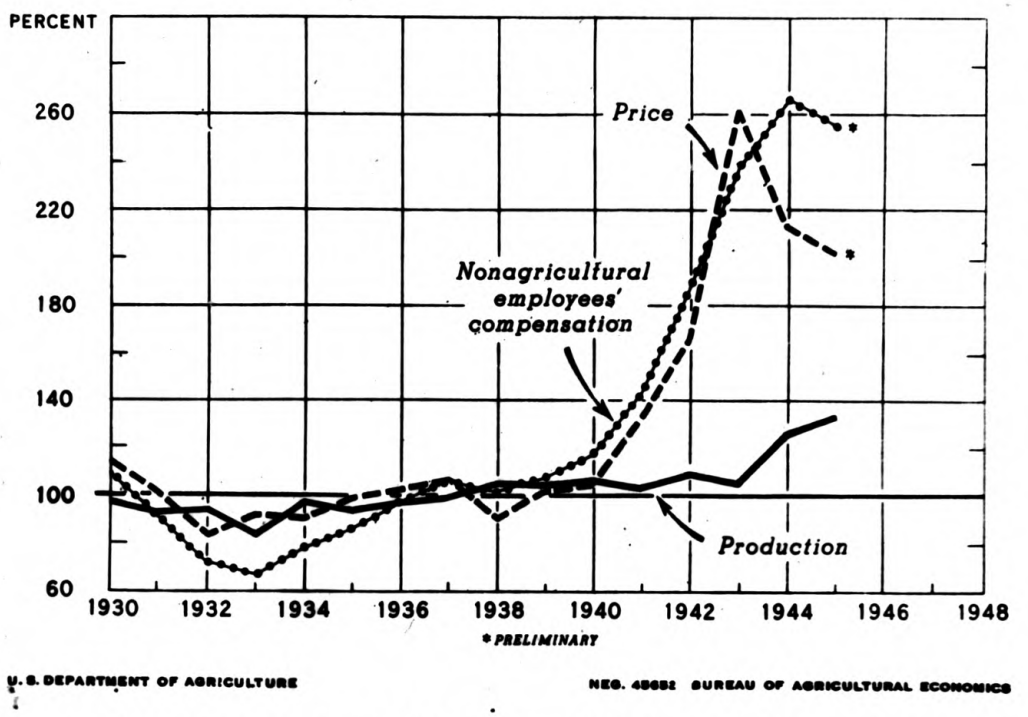
[3]Data not available.

Table 28. Commercial truck crops for fresh market shipment: Index numbers of total production and season average price per ton received by farmers, and index of non-agricultural employees' compensation, United States, 1930-45 (1935-39 = 100).[1]

Year	Index of production	Index of price	Index of non-agricultural employees' compensation
1930	97	115	110
1931	93	101	93
1932	94	84	72
1933	84	92	68
1934	97	91	79
1935	94	99	86
1936	97	102	98
1937	99	107	107
1938	105	90	101
1939	105	101	108
1940	107	104	118
1941	103	133	144
1942	110	166	188
1943	105	261	239
1944	127	213	266
1945[2]	133	202	255

[1] Agricultural Outlook Charts, 1946. U. S. Dept. Agr., Bur. Agr. Econ. 111 p. December, 1945. p. 106.

[2] Preliminary.



Average prices received by growers for commercial truck crops produced for fresh market shipment during the 1930's generally varied from year to year in a direction opposite that taken by production. After 1940, however, average prices rose sharply for 3 successive years with no apparent relation to production. Throughout the years shown, but particularly since 1940, considerable similarity is evident between changes in price and changes in the compensation (earnings) of nonagricultural employees. As such compensation in 1946 is expected to be below that in 1945, an accompanying decline in grower prices for fresh market truck crops is probable, unless production drops unexpectedly.

Fig. 25. Commercial truck crops for fresh market shipment: Total production, season average price per ton received by farmers, and agricultural employees' compensation, 1930-45. Index numbers (1935-39 = 100).[1]

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[1]Agricultural Outlook Charts, 1946. U.S. Dept. Agr., Bur. Agr. Econ. 111 p. December, 1945. p. 106.

PER CAPITA CONSUMPTION OF FRESH VEGETABLES IN THE UNITED STATES

Table 29 and Figs. 26 and 27 show the per capita consumption of melons, which includes cantaloups and other muskmelons, onions, all fresh vegetables and potatoes. Consideration must be given to per capita consumption when studying the long-time outlook for a particular commodity.

Figure 27 shows that the per capita consumption of potatoes, in general, has been decreasing since 1910. The total per capita consumption of fresh vegetables has, in general, been increasing since 1918 (see Fig. 26). Onions and melons appear to have remained fairly constant during the period 1918 to 1943. These facts should be kept in mind when predicting the possible demand for the increased production of Western Kansas vegetables.

Table 29. Apparent civilian per capita consumption, 1918-43.[1]

Year	Pounds			
	Melons[2]	Onions	Potatoes	All fresh vegetables and melons
1918	26.1	23.8	173	190
1919	30.7	20.7	153	194
1920	34.5	24.0	146	220
1921	35.2	19.5	154	194
1922	38.1	20.7	154	211
1923	27.1	20.1	170	191
1924	32.1	19.9	158	208
1925	32.6	19.2	153	202
1926	34.6	19.8	130	203
1927	31.6	21.2	142	215
1928	33.2	19.7	155	207
1929	36.7	20.9	155	223
1930	35.2	21.1	136	213
1931	38.2	18.1	140	222
1932	34.4	20.9	139	227
1933	32.2	20.7	137	213
1934	32.7	18.1	138	218
1935	33.8	21.0	144	230
1936	31.6	22.9	132	219
1937	35.2	22.6	126	235
1938	35.5	22.3	132	247
1939	34.9	24.4	121	242
1940	37.5	21.4	131	239
1941	33.4	23.1	127	241
1942	32.2	24.3	124	251
1943	30.8	21.7	130	235

[1]Richard S. Berberich, "Production and Consumption of Vegetables in the United States." U. S. Dept. Agr., Bur. Agr. Econ. (Mimeo. rpt.) 31 p. December, 1944.

[2]Includes cantaloups and other muskmelons.

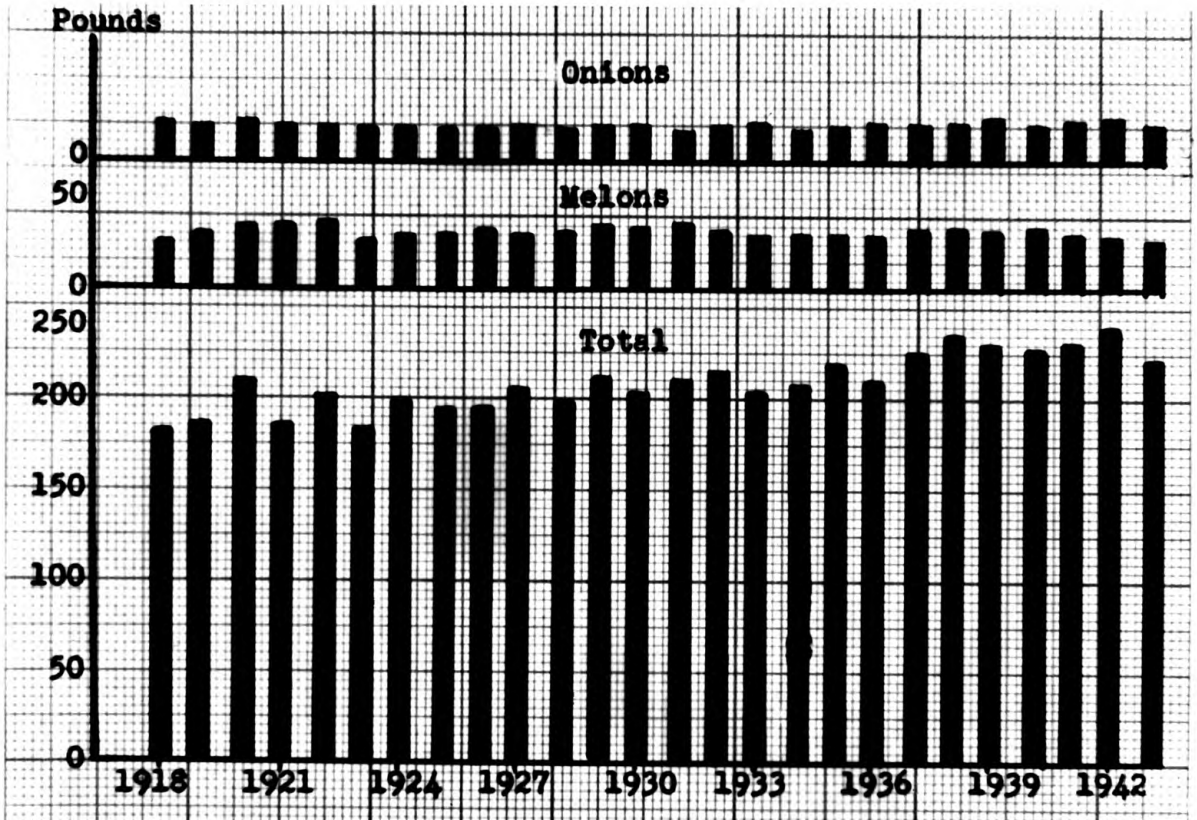

Fig. 26. Fresh vegetables: Civilian per capita consumption, United States, 1918-43.[1]

[1]Richard S. Berberich, "Production and Consumption of Vegetables in the United States. U. S. Dept. Agr., Bur. Agr. Econ. (Mimeo. rpt.) 31 p. December, 1944. p. 11.

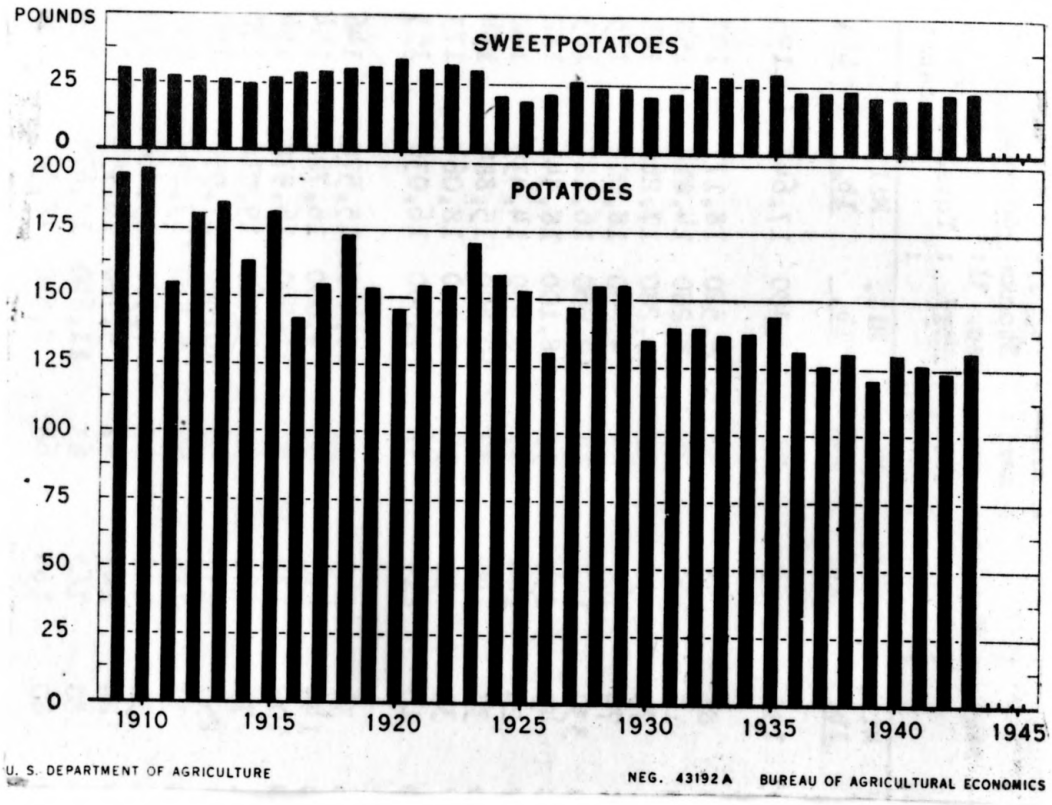

Fig. 27. Potatoes and sweetpotatoes: Civilian per capita consumption, United States, 1909-43.[1]

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[1]Richard S. Berberich, "Production and Consumption of Vegetables in the United States. U. S. Dept. Agr., Bur. Agr. Econ. (Mimeo. rpt.) 31 p. December, 1944. p. 27.

CONCLUSIONS

In the past two years Western Kansas has become one of the most important vegetable-producing areas in the State. More carlot shipments of vegetables were reported from Western Kansas in 1945 than from the potato districts of Eastern Kansas. Estimates indicate that shipments of vegetables from Western Kansas in 1946 will far exceed shipments from Eastern Kansas.

The Western Kansas acreage is produced on a commercial basis under irrigation by relatively few operators while the Eastern Kansas acreage has been largely in the hands of independent producers. Production is combined with an efficient marketing program in Western Kansas.

The Western Kansas area still is new and untried and has developed during a period of high price levels with relatively favorable consumer demand conditions.

The labor force used in the Western Kansas acreage is of a migratory character.

The Western Kansas area could seriously affect the economic conditions of many small scale producers if the Western acreage attempts to find market outlets within the State. At the present time the marketings of the Western Kansas area are on a "ship-out" basis.

The trend of production in the United States for cantaloups and honeydew melons was downward from 1930 to 1943. Sharp

increases occurred in 1944. Potato production increased in all except seven States from 1930 to 1943. Onion production also increased during the period 1930 to 1943. While the trend of production of the four commodities may continue upward in the future, indications are that further acreage expansion in the United States of onions and potatoes might be warranted more than for that of the two melon crops.

The principal unloading months at the four markets for the years studied were as follows:

Cantaloups in August, September and October, 1944-45.

Honeydew melons in August, September and October, 1944-45.

Onions in July to December, inclusive, 1936-45.

Potatoes in June to November, inclusive, 1936-45.

The most important rail outlets for Kansas commodities for the years studied are as follows:

Cantaloups.....St. Louis.....1944-45.

Honeydew melons.....New York.....1944-45.

Onions.....Chicago.....1936-45.

Potatoes.....Chicago.....1936-45.

The principal competing regions for the four commodities from Kansas are:

Cantaloups.....Mid-summer States and late summer States.

Honeydew melons.....California.

Onions.....Late summer States.

Potatoes.....Late spring and summer potato States.

Kansas is the nearest important honeydew producing State to the Chicago market.

The length of haul determined the type of carrier used. Rail was the principal means of transportation for long hauls.

Prices of truck crops varied inversely with production from 1930 to 1939. After 1940 there was no apparent relation between price and production. During all the years from 1930 to 1945, there was considerable similarity between the price received by producers of truck crops and the earnings of non-agricultural employees.

The per capita consumption of fresh vegetables has been increasing since 1918. Potato per capita consumption has been decreasing since 1910. The consumption of onions and melons appeared to remain fairly constant during the period 1918 to 1943.

In summary, Kansas will apparently have more advantage in the future in the production of honeydew melons than for the other three vegetables studied in this thesis.

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